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THE INCREASING IMPORTANCE OF INTER-
NATIONAL STANDARDS TO THE U.S. INDUS-
TRIAL COMMUNITY AND THE IMPACT OF ISO
14000

Y 4. SCI 2:104/52

The Increasing Importance of Intern...

HEARING

BEFORE THE

SUBCOMMITTEE ON TECHNOLOGY

OF THE

COMMITTEE ON SCIENCE

U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTH CONGRESS

SECOND SESSION

JUNE 4, 1996

[No. 52]

Printed for the use of the Committee on Science



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The Increasing Importance of International Standards to the U.S. Industrial Community and the Impact of ISO 14000

TUESDAY, JUNE 4, 1996

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
SUBCOMMITTEE ON TECHNOLOGY,
Washington, DC.

The Subcommittee met at 1:40 p.m., in Room 2318 of the Rayburn House Office Building, the Honorable Constance A. Morella, Chairwoman of the Subcommittee, presiding.

Mrs. MORELLA. The meeting of the Subcommittee on Technology of the Science Committee will now be called to order and commence.

I want to welcome the people on our panel, who are all the experts on an issue that is of great importance. And I'm pleased to convene this hearing to discuss international standards and the impact of ISO 14000.

This hearing is the first of two hearings this week—the Technology Committee has scheduled these hearings—which address issues of extreme importance to the industrial community.

Today, we will be discussing international standards. On Thursday, we're going to be examining the patent examination process. Both of these topics are business issues which have a profound effect on our global competitiveness.

I want to thank you all for being here to discuss this very important subject and, as you know, it was so difficult to try to schedule a time for this meeting when all of you could come together, that we hesitated to even try to cancel the meeting to try to reschedule at another date.

This is a day, of course, where Congress is not voting on anything and we have several other members who will be joining us, and the Ranking Member is here with us.

Any member who is not here will be given the full text of your testimony.

Harmonizing standards world-wide by developing a global set of standards assists companies in eliminating trade barriers and decreasing the cost of business.

The International Standards Organization—ISO—was created in 1946 to promote the development of international standards. It's a nongovernmental, world-wide organization headquartered in Geneva, Switzerland. ISO develops voluntary standards which are de-

veloped by and for the private sector. It celebrates now its 50th anniversary.

In 1987, the International Standards Organization published ISO 9000, a series of quality standards. These standards provide a framework for documenting quality procedures, training employees and decreasing defects. They do not provide specific performance specifications. They are management standards.

The United States was caught unprepared during the development of ISO 9000 and the European countries primarily led in the process. In some cases, this has resulted in discriminatory barriers for United States industries seeking access to European markets.

Currently, the International Standards Organization is in the process of developing a series of environmental standards entitled, ISO 14000. These standards are also management standards, not performance specifications. And instead of relying on end-of-pipe solutions, these standards could play an important role in helping industry focus on environment management issues throughout all stages of the product's life—from product design to product distribution.

Obviously, we want to implement lessons learned from ISO 9000, as we develop ISO 14000.

I look forward to examining the role of American industry and standard organizations in developing environmental management standards that will allow for flexibility in certification, do not create unnecessary layers of bureaucracy, and promote the interests of U.S. industry.

In addition, I also look forward to discussing whether the ISO process is the ideal method of developing international standards.

So that we can have a dialogue among our witnesses, all of our experts have been placed on one panel. This is something I always appreciate doing because there can then be an interplay and someone can respond to someone else's no isolation.

Mr. Joseph Cascio from the Global Environmental Technology Foundation, also chairs the U.S. TAG to ISO/TC 207;

Dr. Belinda Collins from the National Institute of Standards and Technology.

Mr. Sergio Mazza, representing the American National Standards Institute, ANSI.

Mr. James Thomas of the American Society of Testing and Materials.

Ms. June Ling from the American Society of Mechanical Engineers.

Mr. Gerald Ritterbusch of Caterpillar, Inc.

And Mr. Steve Bold, representing Continental Circuits Corporation.

[The opening statement of Ms. Lofgren follows:]

STATEMENT OF THE HONORABLE ZOE LOFGREN

ISO 14000 HEARING

JUNE 4, 1996

Madame Chairwoman,

I wish to compliment you on your decision to hold hearings on the International Environmental Management Standards which are commonly known as the ISO

14000 series. These hearings are timely because the international standards community is expected to ratify ISO 14000, the Environmental Management Systems (EMS) Guidance Standard; ISO 14001, the EMS specification document; and ISO 14004 Principles of Environmental Auditing by the end of next month with publication of these standards coming in September. We can expect that companies around the world will soon start requiring their suppliers to use these standards. If the US is not well prepared for these standards and information on certification is not readily available, many US companies could find themselves cut out of lucrative contracts and otherwise disadvantaged in international trade.

I expect that five years from now, the ISO 14000 series of standards will have changed how industry and government look at environmental issues in ways that today we cannot even imagine. On the positive side, more and more companies will be looking at the environmental consequences. Major changes will occur in the way we design products and in manufacturing processes and decisions from original manufacturing through recycling.

The ISO 14000 series also provides us for a first time with a common framework for judging whether or not any business anywhere in the world is serious about environmental preservation. We could be moving, for a first time, towards a level environmental playing field for companies around the world. For a first time, companies will have assurance that their subcontractors and suppliers are meeting all applicable environmental standards, are committed to continual environmental improvement, and are assessing the environmental consequences of their actions over the entire life cycle of the products they manufacture. ISO 14000 is a way to guarantee that one's manufacturing partners are completely committed to preserving the environment and to exert strong competitive pressures that encourage environmental improvement. If ISO 14000 leads to a deeper commitment to environmental quality on the part of manufacturers, the job of government in ensuring environmental quality becomes much easier. Widespread compliance with these principles would allow EPA to back off the most onerous of environmental regulations without giving up anything in terms of environmental quality. Future environmental improvements could be achieved in a cooperative rather than an adversarial framework.

I am also aware that there are certain dangers in this process and that standards do not always achieve optimal results. Burdens of standards implementation do not always fall evenly. I am especially interested in our making sure that the ISO 14000 process does not put unnecessary financial burdens on small business and that related accreditation, registration, and certification systems are developed with an eye to avoiding duplication and unnecessary expense. There are some who feel that ISO 9000 implementation has been unnecessarily bureaucratic and compliance and certification expenses under this standards series are unnecessarily high. I realize the US TAG has been working to avoid a recurrence of these problems in ISO 14000, and I look forward to learning more about any ISO 14000 small business safeguards which have been put in place.

In closing, I would like to say that today's oversight hearing is the type of work our technology subcommittee should be doing more of. Our colleagues have assigned to us the important role of assessing the impacts on high technology industry of the various actions of the Congress, of the US government, and of our other international representatives. We have been chosen as the Congress' technology advocates and to watch out for the best interests of these growth industries. This is a responsibility I gladly accepted and one I hope we pursue with increasing vigilance.

Mrs. MORELLA. I look forward to hearing the testimony from today's witnesses and the exchange of ideas, and I will now recognize our distinguished Ranking Member, Mr. Tanner.

Mr. TANNER. Thank you, Ms. Morella.

I want to join the Chairwoman in welcoming you all. We appreciate your time in being here today.

It is important work that you do and as business becomes increasingly global, it is inevitable that technical standards will become global, also.

All too often, it seems that some of these standards have been used as barriers to international trade and commerce rather than promoting it. And therefore, your work to create uniform international standards is all the more important, in my view.

What I hope we can develop at the hearing this afternoon is how widespread industry support for ISO 14000 really is, what lessons

we can bring to this from ISO 9000, how well ISO 14000 will actually be implemented, and will it promote international trade in the way that we all want, and what would be the relation between ISO 14000 standards and current EPA regulations and audits?

Can we promote regulatory flexibility with ISO 14000?

The University of Tennessee, my home state, and The Center for Industrial Services, along with Tennessee's Manufacturing Extension Partnership, over the next two weeks is holding a series of seminars across of our state, two of which will be in Jackson, Tennessee and Millington, Tennessee, in the eighth district.

I hope that I can learn something here today to take to those meetings and I want to again thank you so much for appearing and we're going to look forward to your testimony.

I may have to leave to go to the floor if they're going to discuss what I think is going to be discussed over there. And if so, I'd like to ask unanimous consent to submit some questions for the record, Madam Chairwoman.

Mrs. MORELLA. Without objection, so ordered.

We will then proceed and we'll start from your left to right, if that's okay, with Mr. Cascio.

I'll ask you each if your statement—try to be contained within a five-minute period. And then when we hear all of the statements, we'll then open it up to questions.

So we'll start with Mr. Cascio.

STATEMENT OF JOSEPH CASCIO, VICE PRESIDENT, GLOBAL ENVIRONMENT TECHNOLOGY FOUNDATION, ANNANDALE, VIRGINIA

Mr. CASCIO. Good afternoon, Madam Chairman, and members of the Committee.

I appreciate this opportunity to testify on the increasing importance of international standards to the U.S. industrial community and the impact of ISO 14000.

I am Joseph Cascio. I am a vice president of environmental management systems at the Global Environment and Technology Foundation, and I am also chairman of the U.S. Technical Advisory Group to ISO Committee 207, which is developing the ISO 14000 standards.

ISO 14000 embodies a new approach to environmental protection. In contrast to the prevailing command-and-control model, it challenges each organization to take the initiatives to take stock of its environmental aspects, establish its own objectives and targets, commit itself to effective and reliable processes and continual improvement, and bring all employees and managers into a system of shared and enlightened awareness and personal responsibility for the environmental performance of the organization.

This new paradigm relies on positive motivation and the desire to do the right thing, rather than on punishment of errors.

Over the long term, it promises to establish a solid base for reliable, consistent management of environmental obligations.

Regulatory compliance is expected to be one result of this management strategy, along with awareness, sensitivity, and preparedness, greater reliability and consistency in meeting environmental

objectives, and greater confidence in the organization's ability to prevent accidents.

Broadly, the result over time is a shift in the organization's culture to one that is as sensitive to the environment as to production schedules and product design.

Few regulations require such far-reaching changes in the mental attitudes of all employees.

In fact, an organization's preparation for, approach to, and continuing efforts towards ISO 14000 conformance require greater emphasis on certain elements of management than was true under the command and control paradigm.

These changes will in fact bring about the cultural change ISO 14000 promises. That is, the establishment of an organizational environmental ethic.

ISO 14000 expects organizations to take responsibility for their environmental aspects without having to be ordered or directed by government agencies. Organizations are expected to exhibit maturity, initiative, and stewardship vis-a-vis their environmental obligations and consequences.

Under command and control, organizations are often lulled into a passive role, expecting direction and commands from the regulators. Organizations are told by regulators which environmental technologies to use and how to use them.

ISO 14000 expects organizations to consider all of their environmental options, all of their environmental technology options, as they develop and maintain their environmental management system.

This encourages organizations to develop and utilize innovative technological solutions that are performance-based rather than prescriptive.

ISO 14000 is premised on the idea that environmental protection must be integrated into the general management of the organization. This is in line with an emerging management construct that argues for an integrated approach to disparate functions and responsibilities and against reliance on specialized staff departments.

The environmental staff and organizations will play a more prominent role in coordinating, educating, and overseeing employee participation through the ISO 14000 standard.

One of the expectations of ISO 14000 is that employees must be made aware of their responsibility and trained to exercise environmental care. This type of involvement by employees was not often emphasized under command and control.

ISO 14000 promotes change that brings all employees into the picture as knowledgeable, responsible and committed actors in protecting the environment.

ISO 14000 also calls for top management involvement in setting the organization's aspirational goals and the guiding principles in its environmental policy.

More than that, it also assumes top management visibility in espousing an integrated approach to environmental protection that requires the commitment and involvement of all employees. That involvement is not likely to occur if employees are not convinced of top management's interest and backing. The very success of the environmental management system will be jeopardized if top manage-

ment stands back from the type of change contemplated in ISO 14000.

Over time, ISO 14000 will be a force for equalization of environmental regulations between countries. Although this may take many years to accomplish, I believe that implementation of ISO 14000 will ultimately work to harmonize the environmental laws of countries.

As organizations around the world begin developing and implementing environmental management system programs that conform to ISO 14000, their abilities to undertake more sophisticated environmental protection strategies will increase.

Just as the implementation of individual elements of ISO 14000 increases an organization's overall environmental awareness and, consequently, its environmental care, so it follows that as environmental management systems continue to improve, the protection capacity of the organization will be enhanced.

As this happens, with more and more organizations, government leaders may actually see less resistance to reasonable and cost-effective environmental protection measures.

Thus, ISO 14000 helps organizations become more sophisticated in environmental protection. It lays the groundwork for governments to create legislation that is more protective of the environment.

In addition, once ISO 14000 is implemented, compliance with national laws will be improved, since it is a requirement in the environmental management system standard for an organization to have knowledge of and to follow existing country laws.

As regulators find that compliance is increasing, there will greater impetus to continue the evolution and reformation of their country's environmental laws.

An international accreditation and registration system will also serve to spotlight the relative status of national capabilities, including legal frameworks and enforcement programs. Overtime, ISO 14000 registrars will increase their expertise in comparing environmental requirements around the world.

As ISO 14000 proliferates, the strengths and weaknesses of national regulatory schemes will become apparent.

It is reasonable to assume that certain countries will feel compelled to bring their regulations to a higher level. In particular, countries that have the technical infrastructure for managing pollution and waste, for example, hazardous waste management units, recycling facilities, abatement and control systems, will come under subtle pressure to upgrade their legal structures.

Stakeholders see many potential advantages and benefits in an international standard for environmental management. Yet, each group also harbors concerns over possible costs and impacts.

Some in industry are concerned that implementation of ISO 14000 will increase costs and administrative red tape without commensurate improvement in environmental protection or offsetting commercial and regulatory advantages. This fear reflects a failure to understand that the major goal of ISO 14000 is to foster an environmental ethic in the work force that justifies the efforts and brings long-term benefits to the organization.

While the current practice of relegating environmental compliance to a specialized staff may achieve the short-term legal requirements, it is not the solution or the approach that leads to changed attitudes and behavior to safeguard the environment into the future.

The concern expressed is valid if ISO 14000 is seen only in that narrow context of regulatory compliance as ISO 14000 is not needed to simply achieve compliance.

Its real value, rather, is its potential to change the organizational culture and the behavior of individuals. Those are the changes and the benefits which make implementation worthwhile and ultimately justified.

There are several concerns related to small-and medium-sized enterprises.

Many small-and medium-sized enterprises are not yet familiar with the ISO 14000 standard. They dismiss it as being an issue of big business or they see the certification process as being too complicated and expensive.

As chairman of the U.S. TAG, making small-and medium-sized enterprises aware of the standard is my biggest concern. The 14000 standards were developed so they could be tailored to the size and needs of any organization.

Therefore, a smaller enterprise will have proportionately less cost and complication than a large enterprise.

The 14000 standards will benefit organizations of all sizes and could in fact have a greater beneficial impact on small-and medium-sized enterprises because they have the greatest amount to lose from costly and inefficient systems.

Small-and medium-sized enterprises will have much more to gain than larger organizations if certification to the standards is a factor in insurance and banking applications. And all organizations, whether large or small, have the potential to really be impacted by the trade implications of the standards as products are exported to Europe and Asia, where the standards may very well be a de facto condition of doing business.

Furthermore, ISO 14000 avoids the potentially devastating non-tariff trade barriers of national and regional environmental management systems, environmental labelling and life cycle assessment systems and standards that were being developed in the early '90s.

There's a quote from a newsletter in California called the Kiplinger California Letter of April 3rd, 1996, which says that the fastest growth in exports from the U.S. is coming from small-and medium-sized enterprises that have moved to exporting in a major way.

So ISO 14000, in that light, is a significant advantage for small-and medium-sized enterprises.

A few regulators are concerned that emphasis on the management approach to environmental protection will de-emphasize command and control regulation. They believe that environmental performance can only be achieved through coercive measures and detailed legal requirements.

Such attitudes belie a failure to appreciate the fact that environmental protection can only be guaranteed over the long-term by behavioral change and institutional acceptance and integration.

It seems reasonable that as these regulators begin to understand the significance of the ISO 14000 approach, they will embrace its use in alternative compliance schemes to create win/win situations for all parties.

Like regulators, environmentalists too are worried that ISO 14000 may lead to relaxation of the command and control approach. They also worry that ISO 14000 registration will be used to denote environmental excellence of the organization or environmental superiority of the organization's products.

Conformance to ISO 14000 does not in fact necessarily equate to environmental excellence. It only reflects that the organization has a management system that satisfies the elements of ISO 14000.

It would be a misuse of registration as well to imply that the organization's products are environmental preferable. This would confuse ISO 14000 registration with environmental labelling of products.

These are valid concerns that are now being addressed by the leadership of Technical Committee 207.

Certainly, in conclusion, no one in the regulated community wants ISO 14000 to become an engine for more regulation around the world. To the contrary, the desire is to promote voluntary management systems which have benefits far in excess of those derived from mere compliance with regulations and which, over time, can supplant the command-and-control model. The ultimate aspiration is to achieve a system which is based on performance.

In the interim, however, the management standards will co-exist with country laws and regulations which, for now, are still the major incentive for many organizations.

Implementation considerations that relate to management changes, registration strategies, and providing answers to concerns have begun to take center-stage in ISO 14000 circles. This was of course to be expected sooner or later, as organizations began to weigh the benefits and costs of a new approach.

Fortunately, a number of ISO 14000 sources of information and solutions are emerging to assist all interested parties.

My own organization, GETF, has decided to focus on preparing and assisting public-and private-sector organizations both large and small, nationally and internationally, through ISO 14000.

The United States once again has the opportunity to lead in this activity to promote environmental progress and remove trade barriers, as we did with other successful efforts to democratize the governments of other nations.

That's the conclusion of my testimony.

[The prepared statement of Dr. Cascio follows:]

Testimony of Joseph Cascio
Chairman, USTAG to ISO/TC207
Vice President, Global Environment & Technology Foundation

Hearing before the House Science Committee
Subcommittee on Technology
June 4, 1996
on

"The Increasing Importance of International Standards to the U.S. Industrial Community and the Impact of ISO 14000"

ISO 14000 embodies a new approach to environmental protection. In contrast to the prevailing command-and-control model, it challenges each organization to take stock of its environmental aspects, establish its own objectives and targets, commit itself to effective and reliable processes and continual improvement, and bring all employees and managers into a system of shared and enlightened awareness and personal responsibility for the environmental performance of the organization. This new paradigm relies on positive motivation and the desire to do the right thing, rather than on punishment of errors. Over the long term, it promises to establish a solid base for reliable, consistent management of environmental obligations.

Recent industrial accidents, some entailing significant human and environmental harm, have proved that regulatory compliance is not enough to ensure against environmental degradation. As it became clear that compliance was not a complete prescription for environmental protection, an awareness arose that a more proactive system was needed. ISO 14001, the foundation of the entire ISO 14000 series, is such a proactive environmental protection strategy in which regulatory compliance is but one of the elements of a more inclusive and all-encompassing approach.

ISO 14001, the environmental management system (EMS) standard, provides a framework to direct the use of organizational resources to the full breadth of actual and potential environmental impacts through reliable management processes and a base of educated and committed employees. Regulatory compliance is now a normal result of this management strategy, along with awareness, sensitivity, and preparedness, greater reliability and consistency in meeting environmental objectives, and greater confidence in the organization's ability to prevent accidents.

After decades of focusing on compliance with government regulations, however, the regulated and regulating communities will need to engage in some rethinking to look beyond compliance as the measure of an organization's environmental achievement. Compliance will, of course, lose none of its importance in an organization's operations. But it would be shortsighted to view ISO 14001 as merely a tool to achieve compliance, and those who insist on doing so will incur the costs of implementing the EMS without

reaping its full benefits. It is imperative, therefore, that everyone involved with ISO 14001 understand its wider purpose and avoid trivializing it by setting its value only with reference to its impact on regulatory compliance. ISO 14001 is a significant and consequential development in our ability to protect and preserve the environmental resources of our planet--transcending the regulatory compliance approach--and must be valued accordingly by both users and regulators.

There should be no illusion that ISO 14001 will be easy to implement. Even organizations with sophisticated environmental programs will find ISO 14001 challenging. The organization must inventory and then assess all environmental aspects of its operations, products, and services. Regulations may apply to many of these, but they are not likely to apply to all. The standard calls for a system that produces reliable and effective management. While regulations call for compliance, they generally do not include requirements for management systems. ISO 14001 expects all employees to be trained and competent in handling the environmental consequences of their work. This requires the infusion of environmental awareness and attitudes in all workers. Broadly, the result over time is a shift in culture to one that is as sensitive to the environment as to production schedules and product design. Few regulations require such far-reaching changes in the mental attitudes of all employees.

It is also true, however, that the diffusion of environmental responsibility from the environmental engineering function to all employees in the enterprise will be the biggest challenge and one that, in the short term, may carry some risk of administrative noncompliance, as employees learn documentation and other recordkeeping tasks. But, since the goal is to broaden the organizational base of environmental responsibility, we must be willing to accept the possibility of these types of errors during the early phases of implementation. Thus, it needs to be understood that conformance to ISO 14001 is not likely to result in an immediate change in the organization's compliance posture.

AWARENESS OF APPLICABLE LAWS AND REGULATIONS

ISO 14001 requires an organization to be aware of all environmental laws and regulations applicable to its environmental aspects. This requirement will compensate, to a considerable extent, for the ignorance that prevails in places where such laws are not enforced. Today, many organizations throughout the world have only a vague notion of the laws they are subject to. ISO 14001 may also lead some countries to discover that they have many more laws on their books than they can ever enforce, given their resources. Whereas in past years developing countries were encouraged to adopt environmental laws from more-developed countries, compliance and enforcement may have become challenges that strain both the societal commitment and the institutional capacity for proper execution.

In other instances, a country may have adequate regulatory mechanisms but not the resource infrastructure for effective implementation. This is a structural problem that cannot be addressed through a management standard alone. However, awareness of

applicable laws is the first step in the right direction, and it may, through its own compelling dynamic, spur evolutionary changes in behavior, innovative technology development, and institutional will to build the necessary infrastructure.

PROMOTION OF PROCESSES TO MAINTAIN REGULATORY COMPLIANCE

ISO 14001 is expected to promote the development of processes to maintain environmental compliance. While compliance with all applicable laws may be difficult or elusive in many countries, ISO 14001 expects organizations to implement processes to maintain such compliance. In countries where enforcement is strict, compliance processes are a part of doing business and can simply be integrated into the overall management system. In countries where enforcement is either lacking or ineffectual, ISO 14001 will provide the needed (and in some cases the only) impetus to develop processes to reach and maintain compliance. In effect, the standard encourages compliance processes, even in countries where compliance and enforcement have not traditionally been strong. Of course, knowledge of the applicable laws is a prerequisite for establishing any compliance process.

In some developing countries, compliance options will be limited by deficiencies in both organizational resources and available infrastructure. As noted above, infrastructure plays a key role in compliance, since it is very difficult to be in regulatory compliance without the necessary infrastructure. For instance, if there are no recycling facilities in an area, a law that requires recycling is difficult, if not impossible, to comply with. In these cases, organizations may be disadvantaged in meeting the requirements of ISO 14001, since their implementation of credible compliance processes may require greater efforts to overcome structural national deficiencies. If there are no reasonable ways to be in compliance with specific country laws, an organization will not be able to implement a compliance process to meet those laws.

Conceivably, this situation may provide impetus for some countries to redraft their environmental laws so that they match their existing resources and capabilities. Although redrafting laws to match resources and capabilities may weaken the legal framework in the short term, the overall effect is to increase the ability of organizations to comply with legal requirements. As the infrastructure of a country improves, laws can be made progressively strict. The overall effect is to increase the credibility of all parties involved with environmental progress, including legislators, organizations, and enforcement authorities.

On the other hand, countries with an economy that is strong enough to provide an environmental infrastructure should opt to build this infrastructure to match the requirements of their existing laws. Such a step could improve environmental performance immediately, and is obviously preferable to weakening existing laws.

It must be remembered that under ISO 14001, no proof of actual compliance is required for an organization to obtain registration. ISO 14001 requires only evidence of working processes that are designed to maintain compliance. It is certainly a great

desire and expectation that, over time, efforts to implement such processes will lead to more consistent compliance and more supportive infrastructures where they are needed.

REGULATORY AND LEGAL IMPLICATION IN THE UNITED STATES

There is growing interest in the United States about using ISO 14001 for regulatory compliance and enforcement programs. While the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Justice (DOJ) have not taken official positions on its use, there is some interest from both government bodies, and agency representatives have held preliminary discussions with leaders of the U.S. Technical Advisory Group (TAG).

Official positions from these authorities are not expected before the standards are finalized and judged to be successful. To a significant extent, that success will depend on the integrity and reliability of the third-party conformity assessment system. Government authorities will want some evidence or justification for placing their reliance on ISO 14001 registration. Such evidence must cover the accreditation and registration processes, including the rigor of third-party assessment, the independence of auditors, and the use of appropriate professional safeguards similar to those used in financial audits.

Regulators in the United States will have to consider many factors as they decide how to weave ISO 14001 into compliance programs. An organization that has been registered to ISO 14001 will have demonstrated its good-faith, voluntary efforts to better manage its environmental responsibilities and maintain compliance with applicable laws and regulations. In addition, a certified organization will have taken steps to inculcate a sense of responsibility and an environmentally conscious culture in its employees. Presumably, such an organization merits consideration from the regulators and deserves credit for its efforts. Credit could come in the form of expedited permitting, less frequent agency audits, or other means. These incentives would motivate organizations to establish an effective EMS, with the goal of continual improvement of the system, and then to become registered to ISO 14001.

Regulators are also likely to consider registration in their exercise of prosecutorial and sentencing discretion. Both the EPA and the DOJ use guidelines to weigh evidence of environmental management systems for these purposes. It is reasonable to expect that ISO 14001 may become the model used, particularly since it covers a wider number of management elements than the DOJ guidelines and, most important, encourages third-party audits for certification. It is important, however, that regulators not use the absence of ISO 14001 as a penalty against an organization. Since ISO 14001 is a voluntary standard, the only appropriate approach is to reward those who use it, not to punish those who do not. Care must also be taken not to depreciate the significance of ISO 14001 by giving it an insignificant role in voluntary or regulatory schemes. ISO 14001 transcends the limited achievements of regulatory compliance and should be justly valued and accorded the recognition it deserves.

Further, it can be expected that some courts of law will use ISO 14001 as a measure of standard commercial practice or reasonable care. Showing conformance to the elements of ISO 14001 could be very advantageous in civil and criminal liability suits. Indeed, evidence of registration to ISO 14001 is likely to have standing in a court of law, and could be used as a test to determine if an organization is practicing sound environmental management. Again, the difficulty here is to avoid punishing those who have not implemented ISO 14001. Punishment is certainly not the intent, and we should remain watchful to make sure the standard is not used in that way.

EQUALIZING OF INTERNATIONAL REGULATIONS

Over time, ISO 14001 will be a force for equalization of environmental regulations between countries. Although this may take many years to accomplish, I believe that implementation of ISO 14001 will ultimately pressure countries to harmonize their environmental laws.

As organizations around the world begin developing and implementing EMS programs that conform to ISO 14001, their abilities to undertake more sophisticated environmental protection strategies will increase. Just as the implementation of individual elements of ISO 14001 increases an organization's overall environmental awareness and, consequently, its environmental care, so it follows that as an EMS continues to improve, the protection capacity of the organization will be enhanced. As this happens with more and more organizations, government leaders may actually see less resistance to reasonable and cost-effective environmental protection measures. Thus, as ISO 14001 helps organizations become more sophisticated in environmental protection, it lays the groundwork for governments to create legislation that is more protective of the environment.

In addition, once ISO 14001 is implemented, compliance to national laws will be improved, since it is a requirement in the EMS standard for an organization to have knowledge of and to follow existing country laws. As regulators find that compliance is increasing, there will be greater impetus to continue the evolution and reformation of their country's environmental laws.

An international accreditation and registration system will also serve to spotlight the relative status of national capabilities, including legal frameworks and enforcement programs. Over time, ISO 14001 registrars will increase their expertise in comparing environmental requirements around the world. As ISO 14001 proliferates, the strengths and weaknesses of national regulatory schemes will become apparent. It is reasonable to assume that certain countries will feel compelled to bring their regulations to a higher level. In particular, countries that have the technical infrastructure for managing pollution and waste (e.g., hazardous waste management units, recycling facilities, and abatement control systems) will come under subtle pressure to upgrade their legal structures.

APPROACHING IMPLEMENTATION

The focus of interest on ISO 14000 is slowly shifting from the learning of basic concepts and definitions to implementation issues. ISO 14001 -- the EMS specification -- is, of course, the center of that focus.

Managers are beginning to realize that ISO 14001 offers a new approach to environmental protection that relies less on command and control dictates from the government and more on proactive, organizational efforts to take control of environmental aspects through better management and employee involvement and commitment. Under ISO 14001 some things will remain the same (e.g., meeting legal requirements) and some things will change. First I will discuss some new areas of emphasis necessary for a successful implementation, followed by a few thoughts on registration strategies, and finally, a response to some frequently voiced concerns.

NECESSARY ELEMENTS FOR IMPLEMENTATION

An organization's preparation for, approach to, and continuing efforts toward ISO 14001 conformance, require greater emphasis on certain elements of management than was true under the command and control paradigm. These changes will, in fact, bring about the cultural change ISO 14000 promises -- the establishment of an organizational environmental ethic.

FINDING ENVIRONMENTAL ASPECTS

ISO 14001 expects organizations to find environmental aspects which may arise from their activities, products and services. This inquiry is conducted on a holistic basis in that the analysis considers all ramifications of each aspect without trying to force-fit it into a narrow category. Traditionally, under command and control, environmental aspects were categorized and treated as either air, water, soil, or hazardous waste problems.

ISO 14001 expects organizations to take responsibility for their environmental aspects without having to be ordered or directed by a government agency. Organizations are expected to exhibit maturity, initiative and stewardship vis-a-vis their environmental obligations and consequences. Under command and control, organizations were often lulled into a passive role-- expecting direction and commands from the regulators. Organizations were often told by the regulators which environmental technologies to use and how to use them. ISO 14001 expects organizations to consider all of their "technology options" as they develop and maintain their environmental management system. This encourages organizations to develop and utilize innovative technological solutions that are performance based rather than prescriptive.

As national strategy, the command and control system and its resulting passivity did not contribute to optimum environmental protection. ISO 14001 provides the basis to move to a more satisfying and effective model of human behavior that leads to

improved environmental performance.

INVOLVING EMPLOYEES

One of the expectations of ISO 14001 is that employees must be made aware of their responsibility and trained to exercise environmental care. This type of involvement by employees was not often emphasized under command and control. The more typical organizational response was to assign environmental protection to a specialized staff of environmental engineers. That staff would normally interface with regulators on permits, inspections, reports, compliance and enforcement issues. Most of the other employees were not involved in these matters. ISO 14001 promotes change that brings all employees into the picture as knowledgeable, responsible and committed actors in protecting the environment.

One way to raise employees' awareness and involvement is to have them participate in the process of defining the EMS. The identification of aspects, the setting of objectives and targets and the elaboration of control and preventive techniques can all benefit from employee input. More importantly, this is probably the best way to get the buy-in that is key to the ultimate effectiveness and success of the EMS.

INTEGRATION OF ENVIRONMENTAL PROTECTION

ISO 14001 is premised on the idea that environmental protection must be integrated into the general management of the organization. This is in line with an emerging management construct that argues for an integrated approach to disparate functions and responsibilities and against reliance on specialized staff departments. It is unlikely that environmental departments in organizations will disappear altogether. There will always be a need for regulatory and technical specialists. ISO 14001 simply works towards a rebalancing of responsibilities, giving more of it to the employees and altering some of the tasks of the environmental staff.

The environmental staff will play a more prominent role in coordinating, educating and overseeing employee participation. The EMS will, of course, assign specific duties and roles to environmental specialists to ensure its continuing effectiveness and smooth operation. The major change for environmental staff will be an increased coordinative and educational role. In general, this will probably require improved communication skills.

MANAGEMENT SUPPORT

Finally, ISO 14001 calls for top management involvement in setting the organization's aspirational goals and the guiding principles in its environmental policy. More than that, it also assumes top management visibility in espousing an integrated approach to environmental protection that requires the commitment and involvement of all employees. That involvement is not likely to occur if employees are not convinced of top management's interest and backing. The very success of the EMS will be

jeopardized if top management stands back from the type of change contemplated in ISO 14001.

APPROACH TO REGISTRATION: Which Unit Should We Register?

Managers that are considering the advantages of registration will ask themselves whether they should seek a single registration for their entire enterprise, or whether they should subdivide the enterprise into logical or physical units and go for multiple registrations. For those that are managing smaller entities housed in one location, the answer is relatively obvious and they will likely go for one registration. Managers of larger, multi-site entities will want to carefully consider how they proceed on this matter as there may be ramifications for both the costs and the realizable value of registration.

DIFFERENCE BETWEEN ISO 9000 AND ISO 14000

To date, experience with ISO 14001 reflects a tendency by managers to define "organization" more broadly than was done with ISO 9001 -- the Quality Management Standard. We may soon see enterprises that have 100 or more ISO 9001 certificates with fewer than ten ISO 14001 applications. There are reasons for this contrast that stem from both the differences between quality and environmental management, as well as from the acquired knowledge and experience gained by those who went through the ISO 9001 registration process.

Many organizations that implemented ISO 9001 did so at the departmental and sometimes at the individual process levels. One can, therefore, find ten or more registered subunits at a single manufacturing plant. Adding to the complexity, these registrations were sometimes awarded by multiple registrars. Such proliferation has proven to be expensive and disruptive. In fact, many view it as lacking strategic content in that it unintentionally gave skeptics ammunition to attack the value of the standards themselves. It also took time away that could have been spent on improving the system and maximizing the advantages of process management. Needless to say, these organizations have learned from their past mistakes and have no intention to repeat them. They are now planning registration at the highest subunit level that fits the logical or physical realities of their firms. Fortunately, ISO 14001 allows total freedom in defining the "organizational" unit seeking registration. Virtually any organized human activity such as: companies, departments, plants, divisions, construction sites, refineries, mines, branch offices, administration centers, schools, associations, government agencies, insurance offices, banks, restaurants, fire houses, mills, etc., can be considered as "organizations" capable of implementing an environmental management system as specified in ISO 14001.

LARGE MULTI-SITE ENTERPRISES

Some large, multi-site enterprises may choose to obtain a single registration even though it poses unique challenges for both the enterprise and the registrar. Historically, large enterprises have concentrated their environmental focus on environmentally

sensitive operations that are under regulatory scrutiny. Registration of the entire enterprise to ISO 14001 would also bring in administrative and sales offices which for the most part have escaped that scrutiny. Establishing environmental management programs and instilling the environmental ethic in such places would be much more challenging than in those areas where environmental issues have been prominent for years. This is particularly true where such offices are physically separate and remote from manufacturing activities. There are also logistical and resource challenges for the registrar in this approach. Questions on whether one team or more would make the assessment, over what period of time, consistency of approach, team expertise needed to cover greater variety of situations including the role and leadership from corporate headquarters would all require answers prior to undertaking such an assessment. Would one registration for the entire enterprise require management reviews led by the CEO? Arguably, this option can be interpreted to call for such involvement by the CEO. The drafters of ISO 14001 allowed for enterprise registration even though their expectation was that it would be predominantly applied to each location separately.

REGISTRATION OF INDIVIDUAL LOCATIONS

There are issues as well in registering some locations as independent entities. For example, a company's division may have many locations where the same product is manufactured or where different parts of a product are made and subsequently assembled elsewhere. Unless all locations of such a division are registered, it will be virtually impossible for that company to claim that any of the unit's products were manufactured in registered locations. Outsourcing poses additional problems for locations as they acquire product components from other manufacturers. ISO 14001 expects the organization to exercise control over those aspects that it has influence. This does not mean that the other manufacturer must also be ISO 14001 registered. It does mean, however, that the organization must take advantage of opportunities where it had influence to minimize the environmental consequences of its dealings with the other party. The advantage of a location focus is that site management usually has the requisite authority to promote a site-wide management system. The location focus is also appropriate as environmental protection cannot be segmented to lesser units. It would not be in keeping with the spirit of ISO 14001 to segregate an environmentally offensive operation within a location and claim that it is not a part of the organization for purposes of ISO 14001 conformance.

MINIMIZING COST AND MAXIMIZING VALUE

Many considerations must be weighed in choosing the proper unit of registration for an enterprise. For nearly all, the most logical option will be location. For some, this may need to be rolled into a divisional aggregate to facilitate product representations to customers. For small, single location companies, the proper unit will be the entire enterprise. Large, multi-location companies may choose a single company registration, but only if they commit to bringing all operations into line with the environmental ethic and to involve the corporate office in management reviews. Individual processes and

operations within a location will seldom qualify as organizational entities since environmental protection must normally be assured at a location basis for regulatory authorities. Whichever option is selected, managers will undoubtedly be expected to weigh all factors to minimize cost and maximize the value of registration to the enterprise.

COMMON CONCERNS

Stakeholders see many potential advantages and benefits in an international standard for environmental management. Yet each group also harbors concerns over possible costs and impacts.

SOME INDUSTRY CONCERNS

Some in industry are concerned that implementation of ISO 14001 will increase costs and administrative red tape without commensurate improvement in environmental protection or offsetting commercial and regulatory advantages. This fear reflects a failure to understand that the major goal of ISO 14001 is to foster an environmental ethic in the workforce that justifies the efforts and brings long-term benefits to the organization. While the current practice of relegating environmental compliance to a specialized staff may achieve the short-term legal requirements, it is not the solution or the approach that leads to changed attitudes and behavior to safeguard the environment into the future. The concern expressed is valid if ISO 14001 is seen only in that narrow context of regulatory compliance as ISO 14001 is not needed to simply achieve compliance. Its real value, rather, is its potential to change the organizational culture and the behavior of individuals. Those are the changes and the benefits which make implementation worthwhile and ultimately justified.

SOME CONCERNS OF SMALL AND MEDIUM SIZED ENTERPRISES

There are several concerns related to small and medium sized enterprises (SME). Many SME's are not yet familiar with the 14001 standard; they dismiss it as being an issue of big business, or they see the certification process as being too complicated and expensive. As Chairman of the TAG, making SME's aware of the standard is my biggest concern. The 14000 standards were developed so they could be tailored to the size and needs of any organization; therefore, a smaller enterprise will have proportionately less cost and complication than a large enterprise. The 14000 standards will benefit organizations of all sizes, and could in fact have a greater beneficial impact on SME's because they have the greatest amount to lose from costly and inefficient systems. SME's will have much more to gain than larger organizations if certification to the standard is a factor in insurance and banking applications. And all organizations, whether large or small, have the potential to really be impacted by the trade implications of the standards as products are exported to Europe and Asia where the standards may very well be a de facto condition of doing business.

SOME REGULATORY CONCERNS

A few regulators are concerned that emphasis on the management approach to environmental protection will de-emphasize command and control regulation. They believe that environmental performances can only be achieved through coercive measures and detailed legal requirements. Such attitudes belie a failure to appreciate the fact that environmental protection can only be guaranteed over the long term by behavioral change and institutional acceptance and integration. While holding a gun to someone's head will usually make that person behave as you want, you have not necessarily changed his views or attitude. This is the untenable situation we have today with environmental compliance and it is regrettable that some regulators want to see this mode perpetuated. It seems reasonable that as these regulators begin to understand the significance of the ISO 14001 approach, they will embrace its use in alternative compliance schemes to create win-win situations for all parties.

SOME ENVIRONMENTALISTS CONCERNS

Like regulators, environmentalists too worry that ISO 14001 may lead to relaxation of the command and control approach. They also worry that ISO 14001 registration will be used to denote environmental excellence of the organization or environmental superiority of the organization's products. Conformance to ISO 14001 does not necessarily equate to environmental excellence. It only reflects that the organization has a management system that satisfies the elements of ISO 14001. It would be a misuse of registration, as well, to imply that the organization's products are environmentally preferable. This would confuse ISO 14001 registration with environmental labeling of products. These are valid concerns that are now being addressed by the leadership of Technical Committee 207.

CONFORMITY ASSESSMENT

All stakeholders are concerned about the credibility and integrity of conformity assessment. Conformity assessment that lacks integrity is useless as it can nullify any credit the organization expects to receive from customers, regulators and environmental groups. A conformity assessment process that cannot assure the organization is in conformance with the elements of ISO 14001 lacks integrity. Regulators are particularly concerned over this issue as they are under public scrutiny to treat all enterprises equally and not give advantages to undeserving parties. Conformity assessment officials in many countries are taking great pains to ensure the integrity of their conformity assessment systems as the stakes are quite high for all parties.

CONCLUSION

Certainly, no one in the regulated community wants ISO 14001 to become an engine for more regulation around the world. To the contrary, the desire is to promote voluntary management systems which have benefits far in excess of those derived from

mere compliance with regulations and which, over time, can supplant the command-and-control model. The ultimate aspiration is to achieve a system which is based on performance. In the interim, however, the management standards will coexist with country laws and regulations which, for now, are still the major incentive for many organizations.

Implementation considerations that relate to management changes, registration strategies and providing answers to concerns have begun to take center-stage in ISO 14000 circles. This was, of course, to be expected sooner or later as organizations began to weigh the benefits and costs of the new approach. Fortunately, a number of ISO 14000 sources of information and solutions are emerging to assist all interested parties. The next few years should prove very interesting as we collectively work out answers to the many questions.

Mrs. MORELLA. Thank you, Mr. Cascio. I guess that really confirms the conclusion when we have those bells in the background, too.

[Laughter.]

I do want you all to know that the totality of your submitted testimony is entered into the record, and so, there is no need to go through all of it.

I know Mr. Cascio's is exceedingly longer than even his oral statement. And also, it would be nice if we tried to stay within five minutes, too.

Thank you very much.

Dr. Collins?

STATEMENT OF DR. BELINDA COLLINS, DIRECTOR, OFFICE OF STANDARDS SERVICES, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, GAITHERSBURG, MARYLAND

Dr. COLLINS. Thank you very much.

Good afternoon, Madam Chairman, and members of Congress.

It is indeed a pleasure to have the opportunity to testify before you today.

I will be re-emphasizing some ideas that we have presented before, this time in the context of international standards.

As we have said, NIST is committed to working with the private sector and other agencies to develop international and domestic standards that meet our needs as we compete globally.

We firmly believe that U.S. industry benefits from high quality harmonized standards that are accepted world-wide and have the appropriate supporting measurement and conformity assessment procedures.

However, only by participating and by participating vigorously in the development of these standards can we expect harmony in the global market place and the free flow of goods and services across national boundaries.

We must have international agreement on standards as we work to reduce technical barriers to trade. And we note that differences in standards and conformity assessment practices are sometimes deliberately designed only to protect domestic markets.

The technical barriers to trade, or TBT agreement of the World Trade Organization, WTO, is designed to eliminate the use of standards-related measures as deliberate barriers to trade. This agreement asks members to use and to participate in the development of international standards.

It does not, however, specify the organizations which develop such standards.

Nonetheless, there are two primary international voluntary standards organizations—the International Organization for Standardization, ISO, and its companion, International Electrotechnical Commission, IEC.

The United States participates in both of them through ANSI, our member body, with technical support from both the government and private sector, but with virtually all the financial support from the private sector, a picture very different from most trading nations.

NIST plays a key role in the standards process by working with standards developers, with ANSI, with other government agencies, and with industry, to fulfill the NIST mission of promoting U.S. economic growth, by working with industry to develop and apply technology measurements and standards.

NIST staff serve as technical experts on more than 1100 committee, including those of ISO and IEC, and we in fact chair approximately 13 subcommittees, committees and working groups of ISO.

This support, we believe, is consistent with NIST's mission and particularly the new authority given to us by you under the recently passed National Technology Transfer and Advancement Act.

As you know, NIST believes strongly that the United States standards development system should continue to be industry-led and based on a private voluntary process, with technical support from government agencies, where appropriate and where needed.

Yet in this picture, we recognize that the lack of official U.S. commitment to support international standards sometimes hurts us. We are often perceived as not interested in international standards, and this may have been what happened with ISO 9000.

A key stumbling block to effective U.S. action internationally has been the lack of continued support for international standards activities, and a failure to develop national strategies to advance our interests.

We failed to set the agenda for the rest of the world and to work with our trading partners on both standards policy and technical issues.

I believe, however, that with ISO 14000, the picture was very different. Realizing early on that environmental management system standards were being developed in Europe and that they had the very real potential to be used as barriers to trade, the U.S. and other interests were successful in getting ISO to agree to the development of an international management system standard through ISO TC 207, as opposed to a regional European standard.

We believe firmly that agreement on environmental practices and procedures such as is in ISO 14000 is key to enabling industry to compete on an equal footing world-wide. Otherwise, local environmental management practices could be used as barriers to foreign goods and services.

In addition to its work to get TC 207 established, the U.S. delegation to TC 207 worked very hard to build alliances throughout the world—in South America and Asia, with participants such as Brazil and Argentina, Japan and Korea.

We believe the result has been much more flexible standards, as well as an increased commitment by these allies to participate with us in international standards activities.

Turning to the U.S. Government scene, we find that U.S. Government agencies are finding that the standards do reflect U.S. interests and concerns and are not incompatible with the U.S. regulatory environment, again, we believe, due to the extensive private-sector and government cooperation during the development process.

The world-wide interest and participation in the work of ISO 207 is a clear indication of the importance that a broad range of stakeholders throughout the world attach to this area. We believe that it is an excellent example of international standardization, with

broad participation by the United States, good working relationships between private and public sector and close cooperation with other interested national bodies to develop a series of truly international rather than regional standards.

NIST is committed to continuing to work with the other players in this standards process towards development of national policies supporting the goal of one product, one standard accepted internationally.

We believe that we must continue to work together so that the United States can speak with one voice and can participate effectively in the international standards arena.

Together, we can make the dream of open markets a reality.

Thank you very much.

[The prepared statement of Dr. Collins follows:]

Statement of
Belinda L. Collins, Ph.D.
Director, Office of Standards Services
Technology Services
National Institute of Standards and Technology
U.S. Department of Commerce
before the
Science Committee Subcommittee on Technology
U.S. House of Representatives

June 4, 1996

Madam Chariwoman and Members of the Subcommittee, I am Belinda Collins, Director, Office of Standards Services, National Institute of Standards and Technology. The Department of Commerce has a key role to play in addressing technology and global competition. The Department's primary mission is to ensure economic opportunity and a high standard of living for all Americans through economic growth and job creation, promotion of trade, and advances in technology.

I am pleased to be here today to discuss international standards, and in particular ISO 14000.

Background

International Standards and Trade Barriers

Use of international standards is a critical element in the global market. The United States and its trading partners must agree on international standards for defining products, processes and systems. Only by participating vigorously in the development of international standards can we expect harmony in the market place and free flow of goods and services across national boundaries. NIST is committed to working with the private sector and other agencies to develop international standards that meets the needs of industry as we compete globally.

Central to the effective use of international standards is concurrence on process management standards such as the International Organization for Standardization (ISO) 9000 Quality Management System Standards and the newly developing ISO 14000 Environmental Management System Standards. Both sets of standards provide guidance for the way in which industry does business, not only in terms of the quality processes they use but also the procedures by which they ensure that they follow widely accepted environmental management practices. Just as the use of ISO 9000 quality management systems is intended to ensure that a company can manufacture a product repeatedly and consistently, the use of ISO 14000 environmental management standards provides a basis for companies to achieve sound environmental performance by managing their production and operational processes in an internationally consistent manner. These standards will ensure a common set of standards against which products can be compared, and provide guidelines for improving performance.

As background to the discussion of the need for international standards, we must realize that global markets are changing dramatically, with increasing trade between international partners. Last year the United States exported about \$784 billion worth of goods and services. Yet, a large U.S. domestic market, good quality, and reasonable price no longer

guarantee market access for U.S. products. Competition is intense, and technical barriers to trade (including standards and conformity assessment activities) often limit or close off access to foreign markets. It has been estimated that additional exports worth \$20 to \$40 billion could be produced right now, if we could overcome all technical barriers to trade (TBT)s.

Most TBTs result from differences in standards and conformity assessment practices between the United States and our trading partners. While some are legitimately designed to protect human health, safety, or the environment, and acceptable as such under the WTO, others exist only to protect domestic markets. Ideally, the international standards goal (from a technical standpoint) must be to work toward one standard, accepted internationally, for a given product, process or system - such as the environmental management systems standards in the ISO 14000 series. International trade can no longer tolerate the existence of numerous local standards to which products from many countries must conform. This is particularly true of system standards such as the quality and environmental management system standards developed by ISO - which cross the boundary lines of particular products and industrial sectors. Under the Uruguay Round of world trade talks, considerable impetus was given to the acceptance of the concept of a single internationally recognized standard for any particular product.

The Uruguay Round created the World Trade Organization (WTO) as a new institution and successor to GATT (General Agreement on Tariffs and Trade). The WTO now provides a single coordinated mechanism to ensure full, effective implementation of a more open world trading system, including removal of technical barriers to trade. The Technical Barriers to Trade (TBT) agreement of the WTO is designed to eliminate the use of standards-related measures as barriers to trade. Under this Agreement, members are expected to use international standards or relevant parts as a basis for technical regulations except when ineffective or inappropriate. All members are also expected to participate in the preparation of international standards.

Although the WTO agreement stresses the need to participate in the development of international standards, it does not specify the organizations by which such standards are developed. There are, however, two primary international voluntary standards organizations, the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC), including the Joint Technical Committee (JTC-1) of the ISO and IEC. For a range of product categories such as construction equipment, industrial machinery, and medical equipment, ISO and IEC are the arena in which internationally used standards are developed. ISO voting procedures give developing country representatives the same access and voting rights as established European representatives. This access is particularly important in areas where standards affect trade with developing nations. Developing countries, as well as countries in transition (such as those in Central and Eastern Europe), note that ISO membership is their preferred means of participation in international standards activities. They do not

have sufficient resources to participate meaningfully in many standards organizations, so they choose ISO and IEC.

In addition to the two international voluntary standards organizations, there are a number of international treaty organizations in which government-to-government discussions of technical regulations occur. These include Codex Alimentarius, the United Nations Economic Commission for Europe (UNECE), Organization for Economic Cooperation and Development (OECD), International Telecommunications Union (ITU), International Organization of Legal Metrology (OIML), and International Bureau of Weights and Measures (BIPM), etc. The United States is represented in these treaty organizations by the State Department, with technical assistance from relevant Federal agencies, such as the Food and Drug Administration (FDA), the Environmental Protection Agency (EPA), the Federal Communications Commission (FCC), and the National Institute of Standards and Technology (NIST). These international organizations are more concerned with governmental regulations, however, than voluntary standards. Complicating this picture further is the fact that the output of different organizations (voluntary or treaty) may be adopted as either regulation or standard by a country.

U.S. Domestic Standards

While many other countries provide significant support to their national standards body for participation in ISO and IEC, the United States does not. Rather, our participation is through the American National Standards Institute (ANSI), with technical support from both the government and private sector, but with virtually all the financial support from the private sector. ANSI serves as the United States member body to ISO and through the United States National Committee to the IEC. Under a Memorandum of Understanding, signed July 24, 1995, NIST recognizes ANSI's role as the United States member body in ISO and through the National Committee in IEC. ANSI participates in both technical and policy committees for these organizations. In addition to the 220 ISO and IEC Technical Committees (TC's) that ANSI members serve on, ANSI members also play a key role in policy decisions. In particular, the United States played a major policy role in forcing dialogue about environmental management standards from the European forum, where it started, to ISO.

As we discuss international standards, it is imperative to remember that the U.S. domestic standards system is complex, multifaceted and comprised of many diverse elements including; private sector standards bodies, federal regulations, industry standards, and state and local authorities. These distinct activities are closely interrelated and affect almost every aspect of the ability of U.S. industry to compete effectively in the global marketplace. Unlike almost all other nations, the standards development system in the United States is primarily private and voluntary, with little direct financial support from the Federal Government. There are about 41,000 voluntary standards, chiefly developed by about 20 of the more than 400 U.S. Standards Developing Organizations (SDO's). These

standards are used in all industrial sectors - ranging from agriculture to building technology to fragrances to vehicles. The ANSI accredits many of SDO's (as standards developers) according to published procedures. Furthermore, in cooperation with individual SDO's, ANSI publishes many of their standards as American National Standards (ANS).

In addition, the standards developed by many U.S. standards developers are used around the world. These SDO's also count numerous participants from many countries. For example, under the guidance of the U.S. member, ANSI, the Pan American Standards Commission (COPANT) recently adopted the National Fire Protection Association's (NFPA) Life Safety Code for use in the Americas. Similarly, the American Society of Mechanical Engineers (ASME)'s Boiler and Pressure Code is used in 54 countries, while NFPA, ASTM (formerly the American Society of Testing and Materials, the Institute of Electrical and Electronics Engineers (IEEE), and the Society of Automotive Engineers (SAE), among others, have broad international membership and publish standards which are used internationally. Unlike ISO and IEC, membership in these SDO's is by individuals, not by national bodies. These professional organizations have extensive U.S. and foreign membership and participation. Regardless of the organization, central and vital U.S. concepts in the standards development process include: consensus, openness, transparency, membership (including balance among all affected parties), and due process with the right for appeal. These principles are followed by both ISO and IEC, and are supported by all legitimate participants in the standards process.

A key challenge for the United States in making the WTO a reality and working for greater harmonization of standards is to ensure that U.S. concepts and technology are considered in the international standards that will be accepted around the world. Yet, we firmly believe that industry the world over will benefit from achieving the goal of one high-quality, harmonized standard, accepted world-wide with supporting internationally accepted measurement and conformity assessment procedures.

NIST Role

NIST promotes greater use of U.S. technology and practice, and helps U.S. industry deal with technical barriers to trade and provides technical input for trade negotiations. We work diligently to encourage active government participation and to coordinate efforts with our private sector partners in the standards development process, both domestic and international.

NIST has long been a source of technical information and assistance to others, including standards developing organizations, Federal regulators, and trade promotion agencies. Under the WTO TBT agreement, NIST notifies foreign governments of proposed changes in United States regulations and in turn notifies U.S. industry of proposed changes in foreign regulations that may affect international trade. We also assist U.S. industry in

interpreting technical changes in foreign regulations. NIST maintains the National Center for Standards and Certification Information, which responds to more than 10,000 inquiries a year, serves as the WTO and NAFTA Inquiry Points, and is the ISONET member. NIST also publishes and updates a wide range of informational documents on standards-related activities, including product certification programs, laboratory accreditation programs, standards developers, and the ISO 9000 and 14000 series of standards. NIST standards experts and representatives in major markets (the European Union, Saudi Arabia, Mexico, Argentina, and India) provide technical assistance to embassy staff on standards-related issues; provide information to U.S. businesses; facilitate information exchanges with government regulators and private sector standards developers; and provide information to other U.S. government agencies.

NIST works with and on the committees of most private sector consensus standards bodies. This work with industry is a key method used to meet the NIST mission which is to promote U.S. economic growth by working with industry to develop and apply technology, measurements, and standards. Thus, NIST staff provide extensive technical and policy support to the domestic and international standards process by serving as technical experts on many committees. Currently, 365 NIST staff are active on standards committees, 255 of them domestic and 110 international. The total number of memberships in the various committees is 1173. This represents 71 national organizations, and 27 international organizations, including ISO, IEC and JTC-1. NIST staff chair approximately 13 committees, subcommittees and working groups for ISO and IEC. These include such activities as radiation detectors, temperature sensors, superconductivity, reference materials, non-destructive evaluation, surface chemistry, and ceramics. This interaction has proven to be very effective in transferring measurements- and standards-related technology from the NIST laboratories into practice and in helping to minimize technical barriers to global trade.

Participating on private sector standards committees is consistent with NIST's mission and statutory authority as given in the Omnibus Trade and Competitiveness Act of 1988. The Act specifies that one function of NIST is to "cooperate with other departments and agencies of the Federal Government, with industry, with state and local governments, and with private organizations in establishing standard practices, codes, specifications, and voluntary consensus standards." (See 15 USC 272 (b) (9)). The participation is further justified by Section 12 of Public Law 104-113, the National Technology Transfer and Advancement Act of 1995 that encourages NIST to participate in the development and use of private sector consensus standards. It should be noted that the Computer Security Act of 1987 and the Information Technology Management Reform Act of 1996 preclude NIST and any other Federal Agency from committing the United States to any standards concerning national security-related information technology. Such standards are outside the scope of the voluntary standards discussed here. Each of these Acts makes clear that information technology used for national security-related functions may not be subject to standards or guidelines developed or issued by NIST or the Department of Commerce.

Participating on private sector standards committees is also consistent with Administration policy as given in OMB Circular A-119. The circular states that government agencies should "participate in voluntary standards bodies when such participation is in the public interest and is compatible with agencies' missions, authorities, priorities, and budget resources."

NIST has a long history of participation in the ANSI federation. In fact, NIST (then the National Bureau of Standards) and private sector standards developers, including ASME, acted together to establish ANSI in 1919. NIST and ANSI signed the previously mentioned MOU which commits ANSI to represent the United States effectively in voluntary international standards organizations. Both NIST and ANSI are tasked with facilitating communication throughout the standards community to make the U.S. standards system even more effective. For years, NIST and ANSI have cooperated to provide information on U.S. product certification activities through a series of publications. We work with ANSI to share information with industry, notably in the cosponsorship of the National Standards Systems Network (NSSN). The NSSN will eventually provide on-line access to standards and conformity assessment information. This system will speed the flow of information, access to standards, and may eventually allow standards to be developed on-line.

NIST also trains standards and metrology experts from around the world. Over the past year, we conducted seven two-week training sessions at NIST aimed at Russia and the New Independent States (NIS), Mexico, and India, with contributions from both the United States government and private sector officials. The experts from Russia and the NIS also spent six weeks with key U.S. industries. This program (sponsored by the Department of Commerce's International Trade Administration with funding from the Agency for International Development) gives participants first-hand insight into U.S. industry's role in standards and in turn gives us critical contacts and information about standards-related activities in Russia and the NIS. After the first session, targeted at the automotive sector, one U.S. auto company was able to facilitate Russian approval of two vehicle models by clearing up misunderstandings about U.S. testing procedures. A second course led to understanding of U.S. procedures for testing dental products - and subsequent permission for specific products to enter Russia. These efforts lead to greater use of U.S. technology, standards, and testing practices, and strengthen our competitiveness in the global marketplace while reducing TBT's. They also reinforce our efforts at building greater consensus and partnerships in the international standards organizations.

Federal Activities

For the Secretary of Commerce, NIST chairs the Interagency Committee on Standards Policy (ICSP), which consists of senior standards officials from Federal agencies. The ICSP coordinates Federal efforts on standards and conformity assessment under the Office of Management and Budget (OMB) Circular A-119. Challenges for the Federal government as a whole include working with the private sector to improve the current standards process to deal with the changing international scene. NIST and other Federal

agencies are taking a close and comprehensive look at the demands placed on agencies. Together we collaborate in setting priorities to minimize duplicate or competing activities and to encourage action in important areas. Since June 1994, the ICSP has markedly intensified its efforts, meeting quarterly, with working groups for database directories, ISO 9000, laboratory accreditation, and standards policy. Through a resulting industry quality liaison panel, key Federal procurement agencies have signed a Memorandum of Understanding which commits them to require only one quality management system, such as ISO 9000, for their suppliers. The ICSP reports annually through the Secretary of Commerce to the OMB on agency performance on increased use of private sector standards for regulations and procurement, and will assist in implementing some of the requirements of the National Technology Transfer and Advancement Act of 1995. Development of coherent Federal standards strategies will enable all participants in the standards process to develop and present unified U.S. positions to the outside world. In particular, continuing Federal participation in and support of ISO 14000 for environmental management systems provides a critical test of the effectiveness of the cooperative relationship that we are building between government and the private sector in the standards arena.

NIST believes strongly that the United States standards development system should continue to be industry-led and based on a private, voluntary process, with technical support from government agencies where appropriate. An effective standards system does not require greater central control, but greater cooperation and communication among all affected parties. This is particularly true as we work together to build consensus on coordinated U.S. positions within ISO and IEC, as we are doing for ISO 14000. The lack of official, formal U.S. commitment to support harmonization with international standards, unlike most other countries, can hurt us as we implement the WTO and work through international standards bodies such as ISO and IEC. All too often, the United States is perceived as not interested in international standards efforts - we come in late and then too strongly. Moreover, support in the United States for international standards is extremely varied with strong support in some sectors, particularly environmental management, but relatively little support in other areas. The United States often plays a reactive role in standards, rather than setting the agenda for the world or working with our trading partners on standards policy and coordination. The picture is changing as the participants in the voluntary standards process realize the importance of setting common, agreed-upon standards for facilitating trade and setting level-playing fields for process management, such as environmental management systems.

A key stumbling block to achieving effective, continuing U.S. action in international standards has been the lack of continued support for international standards activities. Instead, support is uneven and diffuse, with massive participation in areas such as environmental and only token or no U.S. participation in other areas. The U. S. industry is not always represented at all meetings of a technical committee, or may not be represented effectively by the appropriate technical/policy expert, making it difficult to

influence or contribute to the development of an effective standard. ANSI and NIST must work together with other participants in the standards process to encourage continued, effective participation in international standards activities.

The U.S. standards community is beginning to recognize the needs of industry in the global market, and to address the idea of common strategic planning and operations. For several years, the ANSI leadership has worked with its various constituent organizations to improve cooperation within the domestic standards system and to seek more effective international representation of U.S. interests. NIST continues to work with ANSI to clearly delineate responsibility of and relations among industry, constituent standards organizations and the government, and to improve communications among all parties to strengthen the voluntary standards system and provide a consistent U.S. voice in international discussions.

ISO 14000 - Environmental Management System Standards

Formation of the ISO TC 207 Committee

Critical to the removal of TBT's is agreement on common management systems for industry and governments. Agreement on sound environmental management practices is key to enabling industry throughout the world to compete on an equal footing with the same procedures and rules. It is no simple task, however. Both government and industry have been struggling with this issue for many years, and several complex issues remain outstanding. Yet, without such agreement, individual nations or regions could use unfair, local environmental management practices as barriers to foreign goods and services. To facilitate the development of international management system standards, ISO formed the Technical Committee (TC) 207 on Environmental Management Standardization in June 1993.

Work in the area of environmental management standards is ISO's second foray into the development of management standards. The ISO 9000 series of standards, first issued in 1987 and revised in 1994, describes the elements for organizations to use to establish and maintain quality management systems. During the two years preceding ISO's creation of TC 207, participants in ISO's Strategic Advisory Group on the Environment (SAGE) debated the relationship between the ISO 9000 series of standards developed by TC 176 and the planned work of TC 207. SAGE participants included representatives from the United States, both public and private sector who were instrumental in pushing for an international rather than regional standards committee in this arena. While there are issues common to both quality management systems and environmental management systems, such as operational control, audits, communication, training and corrective action, SAGE felt that while the two standardization areas share some basic principles, the knowledge required for environmental management and environmental auditing is quite

different from quality management and auditing. It recommended a separate technical committee for environmental management standards.

Scope and Make-up of ISO TC 207

The resulting committee, ISO TC 207, is currently developing a family of "environmental management" standards, known as the ISO 14000 Standard Series. These address management systems and the environmental aspects of products in the areas of life-cycle assessment and labeling and are likely to exert a significant influence on the design, manufacture and marketing of products. They are also likely to affect the type of environmental data gathered by businesses and how those data are communicated internally and externally. The scope of TC 207 is "standardization in the field of environmental management tools and systems." It excludes the development of specific test methods for pollutants, setting limit values regarding pollutants or effluents, setting environmental performance levels, and standardization of products. However, through its working group on environmental aspects of product standards, TC 207 is providing guidance to other product-specific ISO committees for evaluating environmental effects of products and services, and the effect that business operations have on the environment. TC 207 oversees six subcommittees and one working group which together have a total of some 25 work items under consideration. In general, TC 207 subcommittees dealing with environmental management systems, environmental auditing and environmental performance evaluation are focusing on process management (how) as opposed to outcomes.

The Canadian Standards Association (CSA) administers the secretariat for TC 207, on behalf of the Standards Council of Canada (SCC), Canada's ISO member body. Forty-eight ISO member bodies participate in the work of the TC 207, with another 13 having observer status. European countries including Russia, central Europe, and the NIS represent the largest geographical grouping participating in TC 207, but the United States and other countries in the Americas and Asia have been quite active in the development of the ISO 14000 standards. ISO has also recognized 22 international or regional non-governmental liaison groups interested in sharing information with TC 207. These include international environmental organizations, industry associations and other entities.

As the ISO member body for the United States, ANSI has designated ASTM (formerly known as the American Society for Testing and Materials) to manage U.S. participation in TC 207. ASTM also serves as the U.S. Technical Advisory Group (TAG) administrator for three TC 207 subcommittees—environmental performance evaluation, life-cycle assessment, and terms and definitions. The American Society for Quality Control (ASQC) is the TAG administrator for two subcommittees—environmental management systems and auditing. NSF International (formerly the National Sanitary Foundation) has recently taken over administration of U.S. TAG activities relating to the subcommittee responsible for environmental labelling standards. The United States also provides the secretariat for the

subcommittee on environmental performance evaluation. There are about 550 members of the U.S. TAG to TC 207 - making it one of the largest TAGs in the United States. Representatives to the TC 207 TAG include industry, government (both Federal and state), academia, auditors, and consultants, as well as environmental groups. The U.S. delegation has worked very hard to build alliances with South American participants such as Brazil and Argentina, and in Asia with Japan and Korea. Participants believe that the result has been greater flexibility in the resulting documents, along with a conviction that participating in ISO 207 is central to their future trade interests.

One of the factors that spurred international interest in environmental management system standards was the emergence in Europe of a number of national standards which concerned United States and other industries. These concerned interests were influential in getting ISO to agree to the establishment of ISO TC 207 with a charter to develop international, rather than European (or U.S.) standards for environmental management. Continuing European influence is evident in the pressure being exerted on TC 207 to develop environmental management system (EMS) and auditing standards quickly, so that international standards are available to support new European legislation regarding an Eco-audit and Management Scheme (EMAS), which went into effect in April 1995. EMAS is a voluntary system which allows European Union (EU) member state governments to recognize organizations operating manufacturing facilities in Europe that meet a relatively detailed EMS and auditing protocol. Another key difference between EMAS and ISO 14000 is the specification of preference for best environmental control technology. The ISO 14000 standards differ in several key respects from pre-existing European national standards and truly reflect the influence of the United States and other ISO members.

In 1994, the European Commission issued a draft mandate to the regional standards setting body, European Committee for Standardization or Comité Européens de Normalisation (CEN), to produce regional standards on environmental management systems. In November 1994, a special CEN working group determined that the TC 207 EMS specification and auditing standards would generally meet the technical requirements of EMAS. CEN then recommended to the European Commission that regional standards work be deferred in favor of the ISO 14000 standards, provided these standards could be finalized as soon as possible. To meet this European demand, TC 207 members agreed to a rapid timetable to develop and approve the four standards deemed critical to EMAS implementation - approximately 30 months. CEN representatives, along with United States and other international members, were directly involved in the timely development of these documents. As a result, four of the six recently approved ISO 14000 standards are now being voted on by CEN members for direct acceptance as European regional standards.

There are several differences remaining between EMAS and ISO's draft EMS specification and auditing standards in the ISO 14000 series. These include: a requirement for an extensive environmental review for EMAS; publication of a validated public environmental statement; and publicly available policies, programs and EMS system. ISO 14001 requires

only that the environmental policy be made available to the public. EMAS also appears to call for more extensive auditing activities than does ISO 14001, and focuses more directly on improvement of environmental performance than does ISO 14001. The draft ISO standard places more emphasis on establishing and improving the system itself; improvement in environmental performance is implied but not explicitly referenced.

Current ISO TC 207 Activities

In July 1995, TC 207 completed work on five key international standards, a specification standard, a general guide to environmental management principles, systems and supporting techniques, and three auditing standards. These documents should provide organizations with the elements of an effective environmental management system (EMS) which can be integrated with other management requirements. The specification standard, ISO 14001, defines the core elements of an environmental management system. The purpose of such a system is to enable an organization "to establish and assess the effectiveness of procedures to set an environmental policy and objectives, achieve conformance with them, and demonstrate such conformance to others."¹ The standard is written to be applicable to all types and sizes of organizations and to accommodate diverse geographical, cultural and social conditions.

Both the EMS specification and guidelines documents were approved by ISO member bodies in February 1996. The revised specification document (ISO 14001) has been circulated to CEN member bodies for a two-month period for a second vote to adopt it as a regional standard. No changes to the document are permitted during this second voting period. Under CEN procedures, if ISO 14001 is adopted as a regional standard, all CEN members must withdraw their national environmental management system standards.

The auditing documents currently undergoing parallel voting by ISO and CEN include: general principles of auditing, procedures for auditing environmental management systems, and qualification criteria for environmental auditors. ISO TC 207 currently plans to issue these documents as guidelines, rather than specifications for which independent certification can be obtained. However, it has been agreed that the auditor qualifications document is applicable for use in the accreditation of environmental auditors. The standards are to be used as management tools in the implementation of an EMS. They are baseline documents which identify minimum criteria. The auditor qualification standard is intended to apply to all types of auditors, and does not specifically address how an auditor would audit an EMS.

TC 207 is also considering documents on several types of environmental labeling. The first document (ISO 14024) addresses multiple criteria-based practitioner programs (Type

¹ISO/DIS 14001: Environmental Management Systems - Specification with Guidance for Use, Introduction

l). These are certification programs, operated either by governments or by private organizations, that communicate a judgment through the use of a single label that a product is "environmentally preferable" within a given product sector, based on an analysis of the product's environmental attributes. The document is intended to serve as a guide for the operation of programs such as Germany's Blue Angel, Japan's EcoMark, and the United States' Green Seal (the German and Japanese programs are government-sponsored, while Green Seal is a privately-operated program). It lays out principles and practices to use when awarding labels to products. Important elements include credibility, consultation with stakeholders, transparency, accessibility and avoiding the creation of unnecessary obstacles to international trade. Type II programs deal with self-declarations by manufacturers regarding specific aspects of a product (recyclability, energy use, etc.) and cover any self-declared environmental claims, not just labeling. The document covering these types of programs, which has been completed by the subcommittee, is compatible with U.S. Federal Trade Commission guidelines on the use of environmental marketing claims.

A central goal for ISO TC 207 is to develop objective tools to measure, analyze, assess and describe an organization's environmental performance against specified criteria. Environmental performance evaluation (EPE) is intended to provide guidance on performance evaluation as a distinct function within an EMS. U.S. participants view EPE primarily as an internal management tool, with the ISO standard establishing the criteria and methodology by which organizations can set their own objectives. So far, this view has prevailed, although some ISO participants want EPE to be a public measuring tool.

ISO TC 207 is also preparing standards on life-cycle assessment as a tool for environmental management of product and service systems. The assessment will include the environmental impacts from the extraction of raw materials to the final disposal of waste. The committee is working on documents in four areas: general principles and framework; inventory analysis; impact assessment; and interpretation. Documents on general principles and inventory analysis are the most advanced, perhaps because conceptual work has already been done in these areas by groups such as the Society of Environmental Toxicology and Chemistry (SETAC). Defining criteria and methodologies for impact assessment and interpretation is more difficult. Many subcommittee participants argue that the state of science in these areas is not sufficiently advanced to permit the development of acceptable standards. The ISO 14000 life-cycle assessment standards are intended to be used within a full-fledged environmental management system, including labeling and the inventory analysis and impact assessments which are intrinsic to an organization's evaluation of its environmental performance.

Under the leadership of Germany, TC 207 recently formed a separate working group to develop a guidance document for use by standards writers on the environmental aspects of product standards, including their effect (both positive and negative) on the environment and on the need to balance competing priorities when addressing environmental aspects

of product standards. This working group is working on recommendations for the use of life-cycle thinking and recognized scientific methodologies in developing product standards that incorporate environmental aspects. The IEC has issued its own guidance document on environmental aspects of product standards which focuses on electrical and electronic aspects of products.

Conformance to ISO 14000 Standards

The work by ISO TC 207 on environmental management system standards is applicable both to self-declaration of conformance by an organization and to third party certification. Similarly, emerging auditing standards are applicable both to internal and external auditors, as well as to auditors in the employ of registrars. However, participants in TC 207 recognize that an organization may seek third party "certification" or "registration" of its management system to meet a regulatory requirement or a demand from customers and/or stakeholders for independent verification. More than a half dozen countries have or are developing accreditation programs for environmental certification bodies or registrars. Some are also making plans to establish programs to certify auditors and/or approve training courses. EMS registrar accreditation programs either already exist or are being established at the national level in Europe, Latin America and the Pacific Rim.

ISO's Council Committee on Conformity Assessment (CASCO), in conjunction with TC 207, held a workshop on environmental management and conformity assessment on June 12-13, 1995 in Geneva, Switzerland. CASCO, established by ISO to address conformity assessment issues for ISO technical standards, has produced a number of guides which have been adopted by both ISO and IEC, and are used extensively around the world. For example, CASCO guides now deal with laboratory operations, product certification and quality system registration. Workshop participants agreed to establish a liaison between TC 207 and CASCO on matters of common interest. CASCO leadership also agreed to initiate a review of past CASCO work in product certification and the use of marks in light of developments in the environmental management arena with respect to environmental management certification logos, product certification marks and eco-labels.

EMS accreditation programs are currently following a variety of models. Existing programs in the United Kingdom and the Netherlands are operated by their respective national accreditation bodies responsible for accreditation of several entities - registrars, product certifiers and laboratories. Although these two bodies currently accredit environmental registrars to the British national standard, BS 7750, their programs will be replaced when ISO 14001 is also approved as a European Regional Standard. Neither programs currently provides for certification of auditors or accreditation of training course providers. The Swiss National Accreditation Body (SAS) is currently accrediting registrars to register companies to DIS/ISO 14001, since 14001 was adopted as the Swiss national standard. A similar situation exists in Austria. In Japan, the Japanese Accreditation Board (JAB),

which currently accredits registrars in the ISO 9000 area, plans to extend its program to cover ISO 14001. In the United States, ANSI, the Registrar Accreditation Board (RAB), the Environmental Auditing Roundtable, the Independent Association of Accredited Registrars, as well as individual companies, are all participating in the establishment of a U.S. system which will cover registrar accreditation, auditor certification, and accreditation of training course providers.

ISO 14000 - United States Government Involvement

The international standards activity underway in ISO in the environmental management area is of great, continuing importance to many U.S. government agencies. Environmental management systems (EMS) and auditing standards are directly relevant to the Environmental Protection Agency (EPA), the Department of Energy (DOE), and the Department of Defense (DOD) as they examine these standards as voluntary programs to carry out regulatory requirements. These standards will encourage companies to improve their environmental performance and to identify and correct their environmental problems themselves. For example, a number of EPA projects and programs such as the Administration's regulatory reinvention Project XL, and the Environmental Leadership Program are devoted to finding innovative ways of increasing compliance and environmental performance, and will test the potential of environmental management systems such as that described under ISO 14000 to achieve these goals. NSF International (formerly the National Sanitation Foundation) is carrying out a project with EPA funding to test the application of ISO 14000 to small and medium-sized business. DOE contracts with major contractors already have language that addresses issues or elements contained in ISO 14001. Work by ISO 207 in the areas of environmental labeling and life-cycle assessment is pertinent to EPA's responsibilities under a recent executive order stipulating that Federal agencies must take "environmental preferability" into account in their procurements. There is also substantial Federal agency involvement in private sector efforts to establish an accreditation program for EMS registrars, auditor training course providers and auditor certifiers. NIST, EPA, DOE and state governments (including California and others) are represented on the EMS Council established by ANSI to develop an accreditation program for registrars to EMS.

Under NIST's leadership, the ICSP has created a working group on environmental management standards to provide a common forum for the exchange of information among agencies on their activities related to the ISO 14000 series. Agency representatives discuss policy and technical issues of common concern, exchange information on agency use of ISO 14000 standards and policies, and share information on the national/international adoption and use of these standards. NIST will act as secretariat for the working group and will maintain information on any agency policy developments or implementation plans related to these standards. Further coordination activities will occur as the National Technology Transfer and Advancement Act of 1995 is implemented.

The ISO 14000 standards that are emerging from ISO TC 207 generally reflect United States interests and concerns and are not incompatible with the U.S. regulatory environment. This is due to extensive U.S. government and private sector cooperation and involvement in the ISO standards development process. The United States has played a significant role in TC 207 to the benefit of both U.S. international trade and domestic interests. Critical to the effective use of the ISO 14000 standards will be the development of measurement standards and data so that monitoring and data analysis will be accurate and consistently applied internationally.

Conclusions

The work by ISO on the 14000 series of standards represents a significant international effort toward needed standards that will be accepted throughout the world. It is a critical first step in the international harmonization of general environmental management programs and practices. There are clear benefits to this harmonization, both for private sector interests and for governments. Thus, environmental management standards should be useful for organizations seeking to improve their environmental performance. ISO 14001, the management system specification standard, calls for continual improvement of the management system. When complete, work on life-cycle assessment and environmental performance evaluation standards will provide organizations with tools to assist them in establishing and improving their management systems. Organizations that have an effective management system in place, and are committed to continual improvement of that system, should be better able to identify, track and control their environmental aspects. This is beneficial both for the organizations themselves and for their surrounding environment. While we have many questions about how the resulting process will actually work, it has the potential to increase environmental performance with perhaps less reliance on traditional regulatory enforcement. Where third party certification is demanded by the market, harmonization of accreditation and certification practices can form the basis for mutual recognition of certificates. This reduces the need for businesses to obtain multiple certifications of their systems or products, therefore reduces costs, and speeds international acceptance of products produced by these industries.

While the full market impact of international environmental management standards is not likely to be determined for several years, worldwide interest and participation in the work of ISO TC 207 is a clear indicator of the importance that a broad range of stakeholders attach to this area. Furthermore, it is an excellent example of international standardization at its best, with broad participation by the United States, good working relationships between private and public sector, and close cooperation with other interested national bodies to develop a series of truly international, rather than regional, standards.

NIST is committed to continuing to work with other Federal and state agencies, standards developers, ANSI, and industry toward the development of national policies supporting the goal of one product, one standard, accepted internationally. We believe in close

cooperation with the private sector and other government agencies to develop systems for standards and conformity assessment that are led by the private sector, but which have the government input demanded by our trading partners to allow U.S. products and services to enter their markets. We must work together so that the United States speaks with a single voice and participates effectively in the international arena - as we have done with ISO 14000. We support participation in ISO and IEC as they develop and implement international standards, and believe that we must work with our trading partners in the Americas, Europe, Asia, and the Commonwealth of Independent States as we seek the highest quality output from these international bodies. Together, we can make the dream of open markets that meet the health, safety and environmental needs of consumers a reality.

Biography

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Belinda L. Collins is the Director of the Office of Standards Services at the National Institute of Standards and Technology (formerly National Bureau of Standards). The Office of Standards Services provides policy support for standards and conformity activities for regulatory, procurement, and trade agencies of the Federal Government. The Office administers three programs: Standards Application and Assistance, Standards Management, and Laboratory Accreditation. Dr. Collins also chairs the Interagency Committee on Standards Policy (ICSP) for the NIST Director. A researcher at NIST since 1974, she served as Leader of the Lighting Group in the Building and Fire Research Laboratory of NIST from 1984 to 1995. She received her B.A. in experimental psychology from Mary Washington College, and her M.A. and Ph.D. in experimental psychology (vision) from the University of Virginia. Dr. Collins has authored numerous technical publications in the area of lighting and human response, is a Fellow of the Illumination Engineering Society of North America as well as Vice President for Education, and a recipient of the NIST Bronze Medal.

Mrs. MORELLA. Mr. Mazza, we're delighted to hear from you.

STATEMENT OF SERGIO MAZZA, PRESIDENT, AMERICAN NATIONAL STANDARDS INSTITUTE, NEW YORK, NEW YORK

Mr. MAZZA. Thank you, Madam Chairman. My name is Sergio Mazza and I'm the president of the American National Standards Institute, which is usually referred to by its acronym, ANSI.

ANSI's goal internationally is to promote global standards that reflect U.S. interests. We do this by promoting the use of U.S. standards internationally. We also advocate U.S. policy and technical positions in international and regional standards organizations, and finally, we encourage the adoption of international standards as national standards when these meet the needs of the user community.

ANSI is the recognized U.S. representative and dues-paying member of the two major nontreaty international standards organizations, the International Organization for Standardization, usually referred to as ISO, and by our U.S. national committee, the USNC to the International Electrotechnical Commission, the IEC.

ANSI members participate in almost the entire technical program of both the ISO and IEC and administer many key committees and subgroups.

The United States, through ANSI, has a strong voice in international standards policy and international standards development.

For example, ANSI is one of five permanent members to the governing ISO council and one of four permanent members to the ISO Technical Management Board. The U.S. National Committee is one of 12 on the IEC's government Committee of Action.

Ninety-five percent of U.S. policy positions are adopted by the ISO Council.

The secretary general of ISO is from the United States, as is the current president of the IEC.

ANSI members participate in over 91 percent of ISO technical committees, and administer 16 percent of ISO technical committee secretariats. Through the U.S. National Committee, the U.S. participates in 91 percent of the IEC's technical committees and is assigned secretariats for 17 percent of their technical committees.

Approximately 25 percent of all ISO standards are produced by the Joint Technical Committee, JTC1, of ISO and IEC on information technology for which ANSI holds the secretariat.

And finally, international standards are often based upon standards developed in the U.S. In many instances, U.S. standards are taken forward through ANSI, to the ISO or IEC, where they are adopted in whole or in part as international standards.

It's important to know that international standards work is carried out almost entirely by volunteers from industry and government, not the ANSI staff. The success of their efforts is often dependent upon the willingness of U.S. industry and the U.S. Government to commit the resources required to ensure strong U.S. technical participation in the international standards process.

Let me now move on specifically to ISO 14000.

As part of its responsibilities as the U.S. member body to ISO, ANSI credits the U.S. technical advisory groups, U.S. TAGs, to ISO

technical committees and assigns ISO committee secretariats to ANSI members.

In the case of ISO 14000, environmental management standards activities, for example, ANSI delegated the administration of the U.S. TAG to ISO Technical Committee 207 on environmental management systems and three of its subcommittees to ASTM, the administration of two other subcommittees to the American Society for Quality Control, and the administration of one subcommittee to NSF International.

The U.S. TAG's primary purpose is to develop and transmit to ISO via ANSI the U.S. positions on activities and ballots of the ISO Technical Committee. Participation in the U.S. TAG to ISO TC 207 provides an opportunity for U.S. business, government, environmental groups and consumers to influence international environmental management standards.

There has been strong cooperation between the U.S. private sector and the U.S. Government from the very inception of ISO TC 207 activities.

To strengthen U.S. effectiveness within ISO TC 207, the U.S. TAG chose as its chair a representative from industry and as its vice chair, a representative from the U.S. Environmental Protection Agency. Jointly and separately, they have encouraged and welcomed the participation of a full range of U.S. interests, including environmental organizations and virtually every segment of U.S. industry and government.

More than 550 people participate in the U.S. TAG and the development of U.S. positions on ISO 14000 documents, and they represent a full range of public-and private-sector interests in both large and small organizations.

In addition to representatives of approximately 300 major corporations, the U.S. TAG includes some 70 trade associations or organizations in virtually every industry sector, including paper, chemical, petroleum, imaging automotive, communications, textiles and others.

We also have some 20 Federal Government agencies, including the Environmental Protection Agency, National Institute of Standards and Technology, the Office of the U.S. Trade Representative, the Department of Defense and Energy.

At least six state environmental protection offices—California, Florida, New York, North Carolina, Ohio, and Virginia—participate in the U.S. TAG, as do representatives of environmental organizations, such as the Environmental Defense Fund, National Wildlife Federation, Green Seal, and the Environmental Law Institute.

Most of these organizations, as well as ANSI, are undertaking outreach and awareness efforts to let their constituencies know about ISO 14000 activities.

It's important to consider the potential impact of ISO 14000 standards on U.S. business. Since the very beginning of the ISO 14000 activities, the discussions within the U.S. Tag have focused on how these new environmental management standards will affect U.S. business.

Many who have participated throughout the process believe the following to be true:

ISO 14000 may be used by companies and organizations to better manage their environmental efforts and to show a commitment to environmental protection.

The implementation of ISO 14000 may become a condition of business loans to companies that are not involved in international trade, not just those in international trade.

Insurance companies may, in the end, lower premiums for those who have implemented the standard.

Compliance with ISO 14000 may become a condition of customer-supplier transactions, especially in Europe.

Proof of compliance to ISO 14000 may factor into regulatory relief programs, the exercise of prosecutorial and sentencing discretion, and consent decrees and other legal documents.

In the courts, ISO 14000 compliance may become a standard of due care in assessing whether a company was in good faith making consistent and diligent efforts to manage its environmental impact. In multilateral trade agreements, there is a high probability that the ISO 14000 standards will become a factor in establishing whether governments are actually making an attempt to improve the environmental situation within their countries.

And finally, the World Bank and other financial institutions may use ISO 14000 standards as an indicator of commitment to environmental protection when making loans to developing countries.

In conclusion, the U.S. Department of Commerce estimates that U.S. businesses, in both the production and services sectors, annually miss out on at least \$30 billion in exports because of technical barriers to trade, most of which are related to standards and product testing and certification. Since it is estimated that each billion dollars in exports translates into 20,000 American jobs, it is apparent that standards and conformity assessment issues are of critical importance to the economic well-being of the United States. The ISO 14000 standards are one tool that can be used to simplify and manage environmental programs within and among companies and nations. Thank you.

[The prepared statement of Mr. Mazza follows:]



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Testimony of Sergio Mazza
President, American National Standards Institute

Hearing before the House Science Committee
Subcommittee on Technology
June 4, 1996
on

**"The Increasing Importance of International Standards to the U.S. Industrial
Community and the Impact of ISO 14000"**

Good morning. My name is Sergio Mazza and I am President of the American National Standards Institute, Inc., which usually is referred to by its acronym, ANSI.¹

We are here today to discuss international standards and how they affect U.S. industry. This subcommittee has expressed a particular interest in ISO 14000 environmental management systems standards, and much of my testimony will focus on that activity.

U.S. Representation at the ISO and IEC

ANSI's goal internationally is to promote global standards that reflect U.S. interests. ANSI promotes the use of U.S. standards internationally, advocates U.S. policy and technical positions in international and regional standards organizations, and encourages the adoption of international standards as national standards where these meet the needs of the user community.

ANSI is the sole U.S. representative and dues-paying member of the two major non-treaty international standards organizations, the International Organization for Standardization (ISO), and, via the U.S. National Committee (USNC), the International Electrotechnical Commission (IEC). ANSI members participate in almost the entire

¹ ANSI is a federation of companies; trade associations; standards developers; technical societies; and labor, academic, and consumer organizations; and approximately 40 government agencies. Virtually every U.S. industry sector is active within the ANSI federation.

The mission of ANSI is to enhance both the global competitiveness of U.S. business and the American quality of life by promoting and facilitating U.S. voluntary consensus standards and conformity assessment systems and safeguarding their integrity. ANSI carries out its mission both domestically, as the focal point for U.S. policy and trade matters related to standards and conformity assessment, and internationally, by representing U.S. interests in international non-treaty standards organizations and fora.

technical program of both the ISO and IEC and administer many key committees and subgroups.

The United States, through ANSI, has a strong voice in international standards policy and international standards development. For example:

- ANSI is one of five permanent members to the governing ISO Council, and one of four permanent members of ISO's Technical Management Board. The USNC is one of 12 on the IEC's government Committee of Action.
- Ninety-five percent of U.S. policy positions are adopted by the ISO Council.
- The secretary general of the ISO is from the United States, as is the current president of the IEC.
- ANSI members participate in over 91% of the ISO technical committees, and administer 16 ISO technical committee secretariats. Through the USNC, the U.S. participates in 91% of the IEC's technical committees and is assigned secretariats for 17 IEC technical committees.
- Approximately 25% of all ISO standards are produced by Joint Technical Committee 1 (JTC1), the ISO and IEC joint committee on information technology for which ANSI holds the secretariat.
- International standards are often based upon standards developed in the U.S. In many instances, U.S. standards are taken forward, through ANSI, to the ISO or IEC where they are adopted in whole or in part as international standards.

International standards work is carried out primarily by volunteers from industry and government, not ANSI staff. The success of their efforts often is dependent upon the willingness of U.S. industry and the U.S. government to commit the resources required to ensure strong U.S. technical participation in the international standards process.

ISO 14000 Environmental Management Standards

As part of its responsibilities as the U.S. member body to ISO, ANSI accredits the U.S. Technical Advisory Groups (U.S. TAGs) to ISO technical committees and assigns ISO committee secretariats to ANSI members. In the case of the ISO 14000 environmental management standards activities, for example, ANSI delegated the administration of the U.S. TAG to ISO Technical Committee 207 (ISO/TC 207) on Environmental Management

and three subcommittees to ASTM, the administration of two other subcommittees to the American Society for Quality Control, and the administration of one subcommittee to NSF International.

The U.S. TAG's primary purpose is to develop and transmit to ISO, via ANSI, the U.S. position on activities and ballots of the ISO technical committee. Participation in the U.S. TAG to ISO/TC 207 provides an opportunity for U.S. business, government, environmental groups, and consumers to influence international environmental management standards.

U.S. Participation in the ISO 14000 Development Process

There has been strong cooperation between the U.S. private sector and the U.S. government from the very inception of ISO/TC 207 activities. To strengthen U.S. effectiveness within ISO/TC 207, the U.S. TAG chose as its chair a representative from industry and as its vice chair a representative from the U.S. Environmental Protection Agency. Jointly and separately, they have encouraged and welcomed the participation of a full range of U.S. interests, including environmental organizations and virtually every segment of U.S. industry and government.

More than 550 people participate in the U.S. TAG in the development of U.S. positions on ISO 14000 documents, and they represent a full range of public and private sector interest, both large and small. In addition to representatives of approximately 300 major corporations, the U.S. TAG includes some 70 trade associations or organizations in virtually every industry sector -- including paper, chemical, petroleum, imaging, automotive, communications, and textiles -- and some 20 federal government agencies, including the Environmental Protection Agency, National Institute of Standards and Technology, Office of the U.S. Trade Representative, and Departments of Defense and Energy. At least six state environmental protection offices -- California, Florida, New York, North Carolina, Ohio, and Virginia -- participate in the U.S. TAG, as do representatives of environmental organizations such as the Environmental Defense Fund, National Wildlife Federation, Green Seal, and Environmental Law Institute.

Most of these organizations, as well as ANSI, are undertaking outreach and awareness efforts to let their constituencies know about ISO 14000 activities.

Potential Impact of ISO 14000 Standards on U.S. Business

Since the very beginning of the ISO 14000 activities, the discussions within the U.S. TAG have focused on how these new environmental management standards will affect U.S. business. Many who have participated throughout the process believe the following to be true:

- ISO 14000 may be used by companies and organizations to better manage their environmental efforts and to show a commitment to environment protection.
- Implementation of ISO 14000 may become a condition of business loans to companies that are not involved in international trade.
- Insurance companies may lower premiums for those who have implemented the standard.
- Compliance with ISO 14000 may become a condition of customer-supplier transactions, especially in Europe.
- Proof of compliance to ISO 14000 may factor into regulatory relief programs, the exercise of prosecutorial and sentencing discretion, consent decrees and other legal documents.
- In the courts, ISO 14000 compliance may become a standard of due care in assessing whether a company was in good faith making consistent and diligent efforts to manage its environmental impact.
- In multilateral trade agreements, there is a high probability that the ISO 14000 standards will become a factor in establishing whether governments are actually making an attempt to improve the environmental situation within their countries.
- The World Bank and other financial institutions may use ISO 14000 standards as an indicator of commitment to environmental protection when making loans to developing countries.

Conclusion

The U.S. Department of Commerce estimates that U.S. businesses, in both the production and services sectors, annually miss out on at least \$30 billion in exports because of technical barriers to trade, most of which are related to standards and product testing and

certification (conformity assessment). Since it is estimated that each billion dollars in exports translates into 20,000 American jobs, it is apparent that standards and conformity assessment issues are of critical importance to the economic well being of the United States.

The ISO 14000 standards are one tool that can be used to simplify and manage environmental programs within and among companies and nations.

Mrs. MORELLA. Thank you, Mr. Mazza.
Mr. Thomas?

STATEMENT OF JAMES A. THOMAS, PRESIDENT, AMERICAN SOCIETY FOR TESTING AND MATERIALS, WEST CONSHOHOCKEN, PENNSYLVANIA

Mr. THOMAS. Good afternoon, Madam Chairman. My name is Jim Thomas. I'm president of ASTM. And I'm very happy to be with you this afternoon.

ASTM is one of the largest standards development organizations in the world. We house 132 committees and several thousand sub-committees developing standards for many different products and services, including standards for construction, the environment, health care, consumer products, energy, computerized systems, and many other areas.

Our members come from 100 countries around the world.

ASTM administers about 65 Technical Advisory Groups, or as we refer to them as TAGs, to ISO Technical Committees. These TAGs are made up, for the most part, of the volunteer participants in ASTM Technical Committees. One of the groups, as mentioned by Sergio, that we administer is the TAG to TC 207, which is in fact developing the ISO 14000 series on environmental management.

Our TAGs have had a wide variety of experiences working in ISO, some good and some not so good. I will attempt to summarize the views they have reported to us in my testimony.

For those U.S. industries who have prevailed in standards decisions in ISO, ISO standards have been beneficial. Prevailing is accomplished in various ways. For example, by U.S. industries who possess the only or latest technology, industries that are multinational, and those that have generous financial resources for standards development.

These industries are committed to the development of ISO standards because it is a legitimate, feasible path that works for them.

On the other hand, there are other sectors of U.S. industry who have not had such favorable experiences. And let me explain.

As you know, ISO's membership is comprised of the national standards organizations of about 110 different countries. Voting within ISO is by nation—one country, one vote. The European Union, of course, has 15 votes in ISO, versus the U.S., which only has one.

We often hear from our TAGs that the members of the European Union vote as a bloc on particular issues and that standards coming from ISO are reflections of European, not American, technology.

According to our TAG members, these standards are adopted by ISO based on political, not necessarily technical, considerations.

Moreover, these are special arrangements between ISO and the European Union's standards organization, CEN, that provide for cooperative efforts between them.

Under their Vienna Agreement, for example, CEN and ISO can conduct a parallel vote and, if mutual agreement is reached, they can publish both the ISO standard and the European Norm concurrently.

No such special arrangements exist with any U.S. or other nonEuropean standards body for parallel voting.

Many U.S. industries have a tough time working in such an international system for a number of reasons.

If these industries are small, their products are innovative, their designs are different, and their technology is at variance with European technology, their perception is that they do not have much of a chance to prevail in ISO. Their U.S. viewpoint is sometimes overborne by the European viewpoint and they end up with an international standard with which they do not agree and which they cannot meet.

I have attached to my testimony letters from TAG members elaborating their experiences.

Some time ago, in an effort to eliminate national standards which it regarded as technical barriers to trade, the U.S. Trade Representative's office opted for a blanket policy of promoting international standardization, interpreted since then to primarily focus in ISO and IEC.

The U.S. Government made commitments to other governments to develop standards in ISO, to adopt ISO standards, and to use its best efforts to get U.S. buyers and sellers to use ISO standards.

This blanket commitment was made without knowing whether the resulting standards would advantage or disadvantage U.S. industries.

We believe the blanket commitment to ISO made by the U.S. Government before it knew whether the ISO process would work for all U.S. industries was an error in judgment. We believe that industry is in a much better position than government to determine whether any particular standards development process, including ISO, works for them.

The ISO process clearly provides a benefit to those U.S. industries which use it successfully, and a detriment to those U.S. industries which are unable to do so.

But it is industry, not government, which should be making the judgment on whether or not to use the process and its results.

We have been told that there is nothing inherently wrong with the ISO system or with the Vienna agreement. But it is time for the U.S. to take a careful, in-depth look at the process, and at the Vienna Agreement in particular, to determine their actual impact in practice on various U.S. industries.

Here, the U.S. Government can be helpful, by collecting, analyzing specific data to see why the process works for some, but not for others. Why this is true and whether there is anything we and other countries can do about it.

Let me turn now to the ISO 14000 series specifically.

Joe Cascio, who is testifying today and who is the chairman of the U.S. TAG to ISO TC 207, which is developing these standards, is much better able than I am to tell you about the experiences of the U.S. TAG in this effort and whether the standards which emerge are the product of any particular nations or group of nations' viewpoint.

I think it is fair to say, however, that the jury is still out on whether the ISO 14000 series will be helpful or harmful to U.S. industry.

The outcome is dependent upon whether certain U.S. industry requirements are met. The standards may be helpful if, first, their technical content is such that their implementation actually results in reduced environmental impacts.

Second, they offer a way for U.S. industry to meet all of its environmental obligations to all governmental authorities by undertaking one program.

Third, they can be implemented at a reasonable cost.

If any of these conditions are not met, these ISO 14000 standards will become another burden rather than an asset to U.S. industry. They likely will be used by European governments, as ISO 9000 has been used, to create additional hurdles for U.S. industry to surmount while seeking access to European markets.

It is only U.S. industry that is going to be able to answer these questions, and we believe the U.S. government should follow their lead.

In our view, the U.S. government should not be committing this country to any ISO standard, including the 14000 series, unless U.S. industry is satisfied that these documents actually reflect their viewpoint, meet their needs, and will be helpful to them, i.e., that the ISO process has worked for them in this instance.

Thank you for the opportunity to testify today. That concludes my statement.

[The prepared statement of Mr. Thomas follows:]

Testimony by James A. Thomas
President
American Society for Testing and Materials (ASTM)
Before the
Subcommittee on Technology,
House Science Committee
June 4, 1996

Good afternoon. My name is Jim Thomas and I am President of the American Society for Testing and Materials, commonly known as ASTM. ASTM is one of the largest standards development organizations in the world. We house 132 committees and several thousand subcommittees developing standards for many different products and services including standards for construction, the environment, health care, consumer products, energy, computerized systems and many other areas. Our members come from 100 countries around the world.

ASTM administers about 65 Technical Advisory Groups (or "TAGs") to ISO Technical Committees. These TAGs are made up, for the most part, of the volunteer participants in ASTM Technical Committees. One of the groups we administer is the TAG to ISO TC 207 which is developing the ISO 14000 series on Environmental Management.

Our TAGs have had a wide variety of experiences working in ISO, some good and some not so good. I will attempt to summarize the views they have reported to us in my testimony.

For those U.S. industries who have prevailed in standards decisions in ISO, ISO standards have been beneficial. Prevailing is accomplished in various ways; for example, by U.S. industries who possess the only or latest technology, industries that are multi-national, and those that have generous financial resources for standards development. These industries are committed to the development of ISO standards because it is a legitimate, feasible path that works for them.

On the other hand, there are other sectors of U.S. industry who have not had such favorable experiences. Let me explain.

As you know, ISO's membership is comprised of the national standards organizations of about 110 different countries. Voting within ISO is by nation: one country - one vote. The European Union, of course, has fifteen votes in ISO versus the U.S., which only has one. We often hear from our TAGs that the members of the European Union vote as a bloc on particular issues and that standards coming from ISO are reflections of European, not American, technology. According to our TAG members these standards are adopted by ISO based on political, not necessarily technical considerations. Moreover, these are special arrangements between ISO and the European Union's standards organization, CEN, that provide for cooperative efforts between them. Under their "Vienna Agreement", for example, CEN and ISO can conduct a parallel vote, and if mutual

agreement is reached, they can publish both the ISO standard and the European Norm (EN) concurrently. No such special arrangements exist with any U.S. or other non-European standards body.

Many U.S. industries have a tough time working in such an "international system" for a number of reasons: If these industries are small, their products are innovative, their designs are different, and their technology is at variance with European technology, their perception is that they do not have much of a chance to prevail in ISO. Their U.S. viewpoint (with one vote) is sometimes overborne by the European viewpoint (with 15 votes) and they end up with "international standards" with which they do not agree and which they cannot meet. I have attached to my testimony letters from TAG members elaborating their experiences.

Some time ago, in an effort to eliminate "national" standards which it regarded as "technical barriers to trade," the U.S. Trade Representative's office opted for a blanket policy of promoting "international standardization" through ISO. The U.S. government made commitments to other governments to develop standards in ISO, to adopt ISO standards and to use its best efforts to get U.S. buyers and sellers to use ISO standards. This blanket commitment was made without knowing whether the resulting standards would advantage or disadvantage U.S. industries.

We believe the blanket commitment to ISO made by the U.S. government before it knew whether the ISO process would work for all U.S. industries was an error in judgment. We believe that industry is in a much better position than government to determine whether any particular standards development process, including ISO, works for them. The ISO process clearly provides a benefit to those U.S. industries which use it successfully, and a detriment to those U.S. industries which are unable to do so, but it is industry, not government, which should be making the judgment on whether or not to use the process and its results.

We have been told that there is nothing inherently wrong with the ISO system or with the Vienna Agreement, but it is time for the U.S. to take a careful, in-depth look at the process, and at the "Vienna Agreement" in particular, to determine their actual impact, in practice, on various U.S. industries. Here, the U.S. government can be helpful -- by collecting and analyzing specific data to see why the process works for some but not for others. Why this is true and whether there is anything we and other countries can do about it.

Let me turn now to the ISO 14000 series specifically.

Joe Cascio, who is testifying today and who is the chairman of the US TAG to ISO TC 207 which is developing these standards is much better able than I am to tell you about the experiences of the US TAG in this effort and whether the standards which emerge are the product of any particular nation's or group of nations' viewpoint. I think it is fair to say, however, that the jury is still out on whether the ISO 14000 series will be helpful or

harmful to U.S. industry. The outcome is dependent upon whether certain U.S. industry requirements are met. The standards may be helpful if : First, their technical content is such that their implementation actually results in reduced environmental impacts. Second, they offer a way for U.S. industry to meet all of its environmental obligations to all governmental authorities by undertaking one program. Third, they can be implemented at reasonable cost.

If any of these conditions are not met these ISO 14000 standards will become another burden rather than an asset to U.S. industry. They likely will be used by European governments, as ISO 9000 has been used, to create additional hurdles for U.S. industry to surmount while seeking access to European markets.

It is only U.S. industry that is going to be able to answer this questions, and we believe the U.S. government should follow their lead. In our view, the U.S. government should not be committing this country to any ISO standard, including the 14000 series, unless U.S. industry is satisfied that these documents actually reflect their viewpoint, meet their needs and will be helpful to them, i.e. that the ISO process has worked for them in this instance.

Thank you for the opportunity to testify. This concludes my statement.

Mr. EHLERS. Thank you very much, Mr. Thomas.

We have not gone through a sex change operation here.

[Laughter.]

We just wanted you to know Ms. Morella has a meeting that she has to attend very briefly, and I'm Congressman Ehlers, filling in for her during that interim period.

We will next go to Ms. June Ling.

STATEMENT OF JUNE LING, ASSOCIATE EXECUTIVE DIRECTOR, AMERICAN SOCIETY OF MECHANICAL ENGINEERS, NEW YORK, NEW YORK

Ms. LING. Thank you. The American Society of Mechanical Engineers, also named ASME International, appreciates this opportunity to provide its views on international standards.

I am June Ling, associate executive director of codes and standards.

Here with me today are Melvin R. Green, deputy executive director, Nelson Milder, government affairs, and Dr. Gene Feigel, our senior vice president-elect for codes and standards.

Today, those who have preceded me have provided a good deal of information on ISO 14000 and U.S. participation in the development of these standards.

ASME, in turn, would like to concentrate on two points.

The first point is that there needs to be recognition that the ISO process is only one means of developing international standards. It is not the only means.

For decades, U.S. voluntary consensus standards developed by organizations such as ASME, ASTM, and the American Petroleum Institute have been used on a global basis and have become de facto international standards.

Unfortunately, there appears to be a growing belief or inference that the only international standards are those published as ISO standards. Many of ASME's standards are adopted by federal regulations and by state and local law. But our standards are also referenced in regulations of other countries and are used and recognized in many more.

Within the last six months, I and other ASME representatives here today have met with industry and governmental bodies in 14 countries, including Hungary, the Czech Republic, China, Hong Kong, South Korea, Japan, Singapore, Russia, Ukraine, Slovakia, and Romania.

In each of these countries, ASME standards are used and/or referenced in the regulations of that country.

ASME is a technical society with an international membership of 125,000 members. We have agreements of cooperation with 48 technical societies located in 43 countries. And through our standards-related conformity assessment program, ASME accredits manufacturers in 55 countries about the world.

ISO standards acquire the title of International Standard solely by virtue of the membership composition of the ISO organization.

Our standards, such as ASME and ASTM, acquire the title of International Standard by actual use in the global market. Clearly, there are international standards other than ISO standards.

This is particularly important when applying the language of the Agreement on Technical Barriers to Trade, including terms such as international standards and international body.

The second point is a recommendation which resulted from bilateral business development standards working group meetings held in Argentina and Brazil in November of last year. These meetings were sponsored by NIST and included the participation of ASME, ANSI, and other private-sector representatives.

Here, it is suggested that the U.S. Government consider facilitating international use of U.S. technology through some underwriting of the distribution of U.S. voluntary consensus standards.

Thank you.

[The prepared statement of Ms. Ling follows:]

The AMERICAN SOCIETY of MECHANICAL ENGINEERS

FOUNDED 1880

Statement of the
Council on Codes and Standards
of the
American Society of Mechanical Engineers
on
The Increasing Importance of International Standards to the
U.S. Industrial Community and the Impact of ISO 14000
Before the
Subcommittee on Technology
Committee on Science
U.S. House of Representatives
June 4, 1996



**The American Society of
Mechanical Engineers**

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JUNE 4, 1996

Madam Chairman and Members of the Subcommittee:

The American Society of Mechanical Engineers (ASME), also named ASME International, is a worldwide engineering society founded in 1880. ASME is a nonprofit scientific and educational organization focused on technical, educational, and research issues. ASME has 125,000 individual members and no corporate or organizational members.

A Board of Governors, elected by the membership, manages the Society. The Board of Governors has assigned the duties associated with the operation of codes, standards, and related conformity assessment programs to the Council on Codes and Standards (CCS). This Statement reflects the views of that Council. This Statement also expands on previous testimony given before this Subcommittee on March 4, 1992. The subject of that hearing was essentially the same - The Federal Role in International Standards.

Present today are Mr. Melvin R. Green, ASME Deputy Executive Director (who testified at the March 4, 1992 hearing); Dr. Gene Feigel, ASME Senior Vice President Elect, Codes and Standards; Mr. Nelson Milder, ASME Government Affairs, and June Ling, ASME Associate Executive Director, Codes and Standards.

Summary Statement

In responding to the five issues identified for discussion at this hearing, there are two main points which the ASME Council on Codes and Standards wishes to emphasize.

First: There needs to be recognition that the ISO process is only one means of developing international standards; it is not the only means.

For decades, U.S. voluntary consensus standards developed by organizations such as the American Society of Mechanical Engineers, the American Society for Testing and Materials, and the American Petroleum Institute have been used on a global basis and are de facto international standards. Unfortunately, there appears to be a growing belief or inference that the only international standards are those published as ISO Standards. Rigid adherence to ISO as the sole administrative means for developing international standards will diminish U.S. influence in both standards development and ultimately in the international marketplace.

Currently, the ASME Boiler and Pressure Code, a technical consensus standard first published by ASME in 1914, is adopted by law or regulation in 48 States of the United States, all the Provinces of Canada, and by federal agencies such as the Department of Transportation, the U.S. Nuclear Regulatory Commission and OSHA. But the ASME Code is also referenced in other countries and used and recognized in many

ASME Council on Codes and Standards
 June 4, 1996 Statement before
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others. Within the last six months, ASME has met with industry, standards institutes, inspection bodies and regulatory agencies in Argentina, Brazil, the EC in Brussels, Hungary, Czech Republic, China, Hong Kong, South Korea, Japan, Singapore, Russia, Ukraine, Slovakia, and Rumania. ASME standards are currently referenced in several regulations of these nations and will be referenced in more. Sections of the ASME code have been adopted as the Korean national standard. Hungary references ASME requirements in their regulations for import and export of pressure equipment. The Pacific Rim has been the highest area of growth of ASME accredited manufacturers. China is using the ASME Code in its nuclear power plant construction program and the ASME code is being applied to Soviet designed nuclear reactor plants by the nuclear regulatory authorities in many of the nations we recently visited.

In our travels, we have heard from industries and from regulatory agencies responsible for public safety that the best technical standard will be the standard of choice and the standard that industry will opt to use. We have also heard that the ISO process, in general, does not yield the best technical standard; particularly for highly industrialized nations.

Clearly, there are international standards other than ISO standards. This is especially important when applying the language of the Agreement on Technical Barriers to Trade, including "international standards" and "international body."

ISO standards acquire the title of "international standard" solely by virtue of the membership composition of ISO. However, this is no guarantor of the technical quality or commercial merit of the resulting standards. Other standards acquire the title of international standard by actual use in the global market; the ones that survive are generally good technical standards.

Second: The U.S. government could assist in advancing the adoption of U.S. technology and practices through facilitating distribution of U.S. voluntary consensus standards to appropriate bodies within nations seeking greater implementation of U.S. standards.

Last year, on November 28 - December 1, ASME, ANSI and other private sector representatives joined the U.S. delegation headed by Dr. Stanley Warshaw, Senior Policy Advisor, Department of Commerce, for meetings of the U.S./Argentina and U.S./Brazil Business Development Council Standards Working Groups. One of the recommendations resulting from these bilateral meetings was to encourage both governments to have regular meetings of representatives from respective standards developing organizations and to provide the standards institutes of both Argentina and

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Brazil (i.e. INTI and IRAM) copies of U.S. Standards as a step in enabling adoption of US technology and practices in these nations.

We heard similar needs expressed in our travels to nations in Central Europe and in the Pacific Rim. Industries and governmental bodies continue to seek ASME, ASTM and API standards. U.S. companies doing business internationally are seeking ways of facilitating acceptance of ASME, ASTM and API standards in other countries.

Through the assistance of Dr. Charles Ludolph, Director of European Affairs, International Trade Administration, Department of Commerce, ASME has met numerous times with the European Commission regarding the EC Simple Pressure Vessel Directive and the proposed Pressure Equipment Directive. At the end of March of this year, we met with EC/DG III, the directorate within the EC responsible for pressure equipment. We heard that the Commission has issued a standards mandate for the soon to be adopted Pressure Equipment Directive and has allocated 10-12 million U.S. dollars for European Standards development under this directive. These funds will go towards covering administrative costs of the European standards developing bodies.

We recognize this type of government funding would not work within the U.S. voluntary standards system; however, as noted above, the U.S. government could facilitate international recognition and use of U.S. technology and practices by underwriting distribution of U.S. voluntary consensus standards to appropriate bodies within nations seeking greater implementation of U.S. standards.

Control of such funding is important. These funds should be administered by the National Institute of Standards and Technology; participating nations with developing markets would designate those standards developed under the U.S. voluntary consensus process which are most appropriate to their needs.

This recommendation is consistent with the spirit of strengthening government utilization of consensus technical standards as stated in Public Law 104-113 - Mar. 7, 1996, Section 12, para. (d)(1) which reads: "Except as provided in paragraph (3) of this subsection, all Federal agencies and departments shall use technical standards that are developed or adopted by voluntary consensus standards bodies, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments." It would also meet the intent of the Agreement on Technical Barriers to Trade provisions for eliminating non-tariff trade barriers, because it would provide a mechanism for the international marketplace to freely decide on appropriate technical standards rather than endorsing a purely formalistic means of

ASME Council on Codes and Standards
 June 4, 1996 Statement before
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providing international standards through ISO.

ASME has been a long time advocate of a strong partnership between the public and private sectors. We appreciate this opportunity to present the views of the ASME Council on Codes and Standards.

ISSUES FOR DISCUSSION

Issue: Is the ISO process the most effective means of developing international standards?

The ISO process has demonstrated effectiveness in developing international standards in areas such as quality management and environmental management systems, in sectors such as information technology and in other sectors in which the primary stakeholders are large global corporations with access to the ISO process beyond just the U.S. membership.

However, there are other sectors where the ISO process is not the most effective means of developing international standards. In the pressure equipment sector which spans industries such as the fossil fuel, nuclear power generation, and petrochemical industries, and in which regulations and adopted voluntary consensus standards serve to enhance public safety, it is highly questionable whether ISO can be an effective process for the development of technical standards. So far, it demonstrably has not been.

Since 1884, ASME has served the public through its codes and standards programs. As early as 1898, ASME was involved in international standards for testing materials. From this early involvement in domestic and international standards, ASME participated in the formation of organizations such as the American Society for Testing and Materials (ASTM) and, in 1918, ASME joined with the other four major engineering technical societies in organizing and founding the predecessor organization to the American National Standards Institute.

Today ASME publishes over 600 standards which are used and recognized in 80 countries around the world. ASME's conformity assessment marks are being applied to equipment produced by manufacturers in 54 countries. ASME procedures provide for open access and participation by any interested or concerned party regardless of nationality. These provisions exceed any of the General Agreement on Tariff and Trade (GATT) or World Trade Organization or United Nations requirements for the

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development of standards.

As a technical society with an international membership of 125,000 members, ASME has unique technical resources to be a major consensus standards developer. In addition, ASME has agreements of cooperation with 48 technical societies located in 43 countries. These technical societies through their technical papers and members have input to ASME codes and standards. ASME answers thousands of inquiries from more than 80 countries each year and actively updates its standard through an addenda process.

In 1972, ASME extended its conformity assessment program under the ASME Boiler and Pressure Vessel Code to manufacturers outside of the United States and Canada. At that time, overseas manufacturers were interested only in exporting pressure equipment to the United States. Now, that limitation is no longer true; equipment is being stamped in one country and shipped to and installed and operated in another country - neither of which is the United States.

This global input and use of the ASME Boiler and Pressure Vessel Code qualifies the Code as an International Standard. Clearly, ASME is an international organization and is an international standards developing organization.

Issue: How does the United State's role in ISO 14000 differ from the role the U.S. played in developing ISO 9000?

There is greater participation of the United States in the development of ISO 14000 than there was in the development of ISO 9000. (Refer to other testimony at this hearing for details.)

Issue: Do ISO standards developing procedures provide adequate protection for U.S. industrial companies?

The national standards bodies of over 80 countries are the member bodies of ISO. Because each of these members of ISO is entitled to one vote on a proposed standard regardless of the population of that nation and regardless of the size of the affected industry or market, ISO should not be considered as a true consensus standards developing organization. Consensus development requires a balance of interest of those who might be materially affected by the requirements of the standard. This includes interest categories such as manufacturers, owners/users, regulatory agencies, independent laboratories, insurance companies, inspection bodies, etc. It is

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this "balance" which ensures that a single interest cannot dominate the setting of technical standards. The ISO system of one country one vote cannot ensure that requirements of an ISO standard has met the criteria of a balance of interest of those materially affected by the standard.

There have been cases in which the U.S. industry has had difficulty in getting the provisions of an ISO Standard to provide equal acceptance of U.S. products. In many instances, the ISO standard favored European manufacturers' input. Once again, the restriction of one country one vote presented undue obstacles to the U.S. interest.

Issue: Are U.S. companies and standards developing organizations being aggressive enough in the development of ISO 14000?

The American National Standards Institute (ANSI) is the United States member body to ISO. ASME serves as the administrative secretariat for ISO Technical Advisory Groups (TAGs) when ASME has an interfacing standards committee with the same or similar scope of the ISO committee.

ASME has representation on the U.S. TAG for ISO 14000.

Issue: What procedures are being developed to protect royalty income payments to the U.S. standards development bodies?

As long as ISO maintains its policy that each member country has exploitation rights of ISO standards, it is highly unlikely that protection of revenues would be achieved. It is also highly unlikely that ISO will change this policy.

In addition to loss of revenues and intellectual property rights, once a standard is accepted by ISO as meeting its criteria for acceptance as an international standard, the original standards developer loses control over the updating of the provisions of the standard. Updating of ISO standards is infrequent. An industry which needs to incorporate advances in technology or provide for changes in requirements to include new products or methods would not be well served. ASME updates its standards regularly and publishes revisions in an annual addenda subscription service for the standard. Within a given year, ASME answers over 30,000 inquiries from companies and individuals from around the world regarding its codes, standards and conformity assessment programs.

Conclusion:

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The ASME Council on Codes and Standards appreciates this opportunity to present its views that:

There needs to be recognition that the ISO process is only one means of developing international standards; it is not the only means.

The U.S. government could assist in advancing the adoption of U.S. technology and practices through facilitating distribution of U.S. voluntary consensus standards to appropriate bodies within nations seeking greater implementation of U.S. standards.

Mr. EHLERS. Thank you, Ms. Ling. We appreciate your testimony.

Next, Mr. Ritterbusch.

STATEMENT OF GERALD RITTERBUSCH, MANAGER, PRODUCT SAFETY, CATERPILLAR, INCORPORATED, PEORIA, ILLINOIS

Mr. RITTERBUSCH. Thank you, Mr. Chairman. I appreciate the opportunity to present testimony to this hearing today.

I am employed by Caterpillar in Peoria, Illinois, which is a global manufacturer of earth-moving and construction machinery.

As we compete in a global market, international standards are very important to our ability to market and service product around the world.

What I would like to do is talk a little bit about how we go through the process of developing standards in our sector, and also relate some of my experiences that I have had as chairman of ISO TC 127.

We work very closely through our trade association to develop the ideas for new standards or revisions to existing standards. In fact, the Equipment Manufacturers Institute, our trade association, is meeting today in Chicago, and some of my staff are there working on a number of these issues which relate to additional standards and revisions to existing standards.

We do our standards development work through several of the technical and professional societies. Our experience is primarily with the Society of Automotive Engineers, as they develop standards for the land, sea, air and space mobility community in which we work.

We also have some standards activity in the American Society for Agricultural Engineers.

Once we develop a standard in that area, it's in our interest to take that to the international community, and that's how we work through ANSI, to develop the standard into our various technical committees for either earth-moving machinery, agricultural machinery, or in some of the other more specific topical areas, such as vibration and noise.

For example, in ISO TC 127, we have organized the U.S. technical advisory group such that it can very quickly bring together U.S. positions.

The way in which we're doing this is we have assigned each of the standards in ISO TC 127 to what we call a subject matter expert who is a member of U.S. interested parties, such that they can quickly draw from their experience and the experience of others in a very similar area on what should be the content of an ISO standard.

In this way, we are able to very quickly develop our comments, prepare drafts, and also move ahead the process of developing standards.

I would also like to talk a little bit about the European standards organizations because they become an issue whenever we start dealing with the new approach to directives in Europe.

ISO standards are voluntary. And in various discussions with the European Commission staff, they have kept making the point that the member countries around the world have an opportunity when

they adopt an ISO standard as a national standard to make some slight changes in it.

For Europe, with their new approach directives, they absolutely could not tolerate member countries making slight changes. And that's why they, in Brussels, very clearly took a look at CEN and CENELEC, and there is a very important statement in this charter of both CEN CENELEC which says that no European country that is a member of either CEN or CENELEC may have a national standard which is in conflict with the European standard.

This is very important to Europe, but it's also important to U.S. exporters because what it ensures is that we will know the standard is uniform across not only the 15 countries that are in the EU, but the additional three countries that are members of CEN and CENELEC. And as we're seeing the progression in Central Europe to many of those countries adopting CEN and CENELEC standards, we're getting the whole European arena now to be harmonized around the CEN standards.

Now in order to ensure that CEN is using ISO standards, it's very important that U.S. interests take a very strong lead in ISO and keep the action there.

That's the thing that we did in ISO TC 127 when this first started about ten years ago. We made sure that the interesting standards work was going to be done in ISO and not in CEN.

As a result of that, what we are finding is that CEN are taking over the ISO standards that we have developed in our product sector and are making European standards out of the ISO standards.

In this way, we have been able to maintain very effective U.S. input into the standards development process.

Now I'd like to turn a little bit to the ISO 9000 and 14000 interest area.

9000 as a standard is a good standard. What happened to it is that once it was finalized, registrars, certification bodies, and a number of other people who had an extreme opportunity to make a profit based on that standard really twisted around the intent of the ISO 9000.

ISO 9000 was intended to help a manufacturer and a customer communicate on quality. But what happened in this is that the registrars made a very strong push to develop the registration system such that a company would have to be registered in order to market its product.

This is what caught most of the U.S. industry off base because in the U.S., we are very strong on the firm process of manufacturer's declaration of conformity or self-certification, while Europe has a much different cultural approach to using third-party or type approval.

For those of us who have worked for many years in Europe, we've had to face the type of approval requirements in Europe, and then after that, there was really very little until the new approach of Europe went into effect.

At that point, then Europe decided also that they needed to have some way to ensure that manufacturers would continue producing product in conformity with the directive.

As a result, the European Commission gave some tacit approval to ISO 9000. That just added fuel to the process of the registrars

to continue to excessively hype the merits of third-party registration and certification.

Now as we look at 14000, and I think all of the U.S. interests have learned a lesson from 9000, and that is why the current TAG for ISO 14000 numbers well over 500 people. There is a lot of interest in this, a lot of communication going on, such that U.S. interests have the maximum opportunity to really understand the standard.

The standard that's coming out of 14000 are going to be good standards. The question is are we going to let the registration certification community drive this in the same manner as 9000. If we do, then we're going to see some of the same criticism that has been levied against 9000.

On the other hand, if business people are smart and make good decisions with regard to that and only do the certification where it really has value, 14000 will be an effective tool at providing improvement in the environmental performance of industries around the world.

Just one other little comment I'd like to add here is that, in October, I was in China and met with the earth-moving machinery standards group. China has adopted about 65 percent of the ITO TC 127 standards as Chinese national standards.

In April, we were in Japan with their ISO meeting and we discussed the same issue with the Japanese delegation. They have indicated now that the Japanese government is very aggressively asking all of the industrial sectors to adopt ISO standards.

Two weeks ago, I was in Moscow and met with the GAS standards group and we went through the same discussion and found that they have adopted about 65 percent of our ISO standards as GAS standards.

So all of the countries around the world, our future trading areas are very aggressively adopting ISO standards. ISO will work. It's very important that American industries put their shoulder to the process, get involved with it, support the TAGs. We've seen the good support we have in the ISO 14000 TAG. We need to do this in the other areas that are of interest to U.S. industry as well. Thank you very much for the opportunity to present comments to this hearing.

[The prepared statement of Mr. Ritterbusch follows:]

TESTIMONY BEFORE
THE UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE,
SUBCOMMITTEE ON TECHNOLOGY
REGARDING THE
"IMPACT OF INTERNATIONAL STANDARDS AND ISO 14000
ON USA INDUSTRY"
BY
GERALD H. RITTERBUSCH
MANAGER, STANDARDS AND REGULATIONS
CATERPILLAR INC.
AND
CHAIRMAN,
INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
TECHNICAL COMMITTEE 127, EARTHMOVING MACHINERY
4 JUNE 1996

I appreciate the opportunity to present testimony before this committee regarding International Standards and specifically on the impact that the future ISO 14000 series of standards will have on industry. I have been involved in ISO standards development since 1973. My current corporate responsibility is to ensure that Caterpillar effectively and strategically participates in national, regional and international standards development. Caterpillar competes in a global market, and therefore the development of harmonized standards at the international level is a vital factor in being competitive in all markets. Therefore, it is an imperative that we develop international standards.

Standards are very useful in industry and commerce. A major purpose of standards is to capture information and make it available for subsequent users so that they may benefit from the work of those who previously encountered the issue. Standards communicate vital information so that subsequent users don't have to labor to invent that which has already yielded good results for industry, consumers and society. Standards are a stepping stone from which to achieve new levels of performance. Standards may also enumerate the minimum level which is acceptable. Some standards become the foundation of laws and regulations when governments determine that voluntary use of the standard may not fully serve the interest of society.

Standards also effectively serve in communication of information from sender to receiver. For example if I were to tell a customer that a certain earthmoving machine had an engine power of 300 kilowatts, the customer would have to ask me a whole host of questions to be able to understand just how much power the engine would deliver. On the other hand, if I told the customer that the engine delivered 300 kilowatts of power according to ISO 9249, the customer would know exactly what I meant. Furthermore, I wouldn't even have to send the customer a copy of ISO 9249 because wherever the customer were located, say if in Germany, the customer could quickly get a copy of ISO 9249 from the local national standards organization.

A similar case would be if I were asking a supplier to make a spline on a shaft in a tractor transmission. I could specify that the spline shall be manufactured in accordance with ISO 14. I wouldn't have to repeat specific technical information to the supplier each time I wanted a new shipment of shafts with splines. I would know that the splines will work in the transmission because they are made to international standards which both the supplier and I understand.

The standards development process is really very simple. Any person that determines a need for a standard can start the process. A person with an idea for a standard needs to find others that also see a need for a standard. This can be accomplished from industry through Trade Associations. Trade Associations provide the environment for people with ideas to get together to determine if there is support for a standard. Trade Associations are not the best organization for the actual development of a standard because usually the participation in a Trade Association is limited to those members directly involved in the industry. The preferred method to develop standards is through the voluntary consensus process administered by Technical or Professional Societies. These organizations provide opportunities for all interested parties to voluntarily engage in the standards development process. These organizations have numerous means to alert various interest groups of the development of new standards. Technical or Professional Societies are generally organized by disciplines and thus it is readily apparent who develops what standards.

My experience is principally with the Society of Automotive Engineers. This organization develops standards for the land, sea, air and space mobility community. The American Society of Agricultural of Engineers develops standards for the agricultural community. Thus, it is quite easy to determine who will develop what standards.

Once a standard has been developed in a specific society, the interest is to gain wider usage of the standard. There are no benefits in keeping a standard as a secret because technical staff in another country may also have similar ideas on the need for a standard. They may complete their work and then have the same ideas regarding wider acceptance of their standard. As a result they may arrive at the international scene earlier and then have the advantage. Harmonization of several standards is much more difficult than gaining acceptance of the initial standard.

The road to wider acceptance of the standard you have developed, is to take it to the International Organization for Standardization (ISO) or the International Electro-Technical Commission (IEC). These organizations have organized more than 300 Technical Committees which have specific scopes covering defined sectors of industry and commerce. Thus, it is quite easy to find a Technical Committee to consider your standard and embark on the process of building consensus for an international standard. This is where the American National Standards Institute (ANSI) becomes an asset to the industry and the Technical and Professional Societies. As ANSI is the USA member body to ISO and IEC, they provide the interface for the USA organizations to operate in ISO or IEC.

For ISO Technical Committee (TC) 127, Earthmoving machinery, we have organized the USA Technical Advisory Group (TAG) to develop the USA national position on the ISO TC 127 standards projects. In order to secure maximum input from USA interests, we have assigned a Subject Matter Expert (SME) to each work project and standard in ISO TC 127. These SMEs work through the SAE standards committee for earthmoving machinery to ensure that relevant expertise from the USA is organized for input by the TAG to the TC 127 Technical Committee. As the USA holds the Secretariat for ISO TC 127 we are able to have maximum effectiveness in directing the work program of standards development for earthmoving machinery international standards.

The experience in the earthmoving machinery sector has been very good in using the ISO process to develop international standards. By effectively using the SAE in a national standards developer role, we are able to bring together the USA expertise in the sector. The TAG then becomes the marketing group to convince the other participants in the ISO process to accept the USA input.

ISO and IEC have specific rules for the introduction of new standards projects. Obviously, you have to effectively present your rationale for the need for an international standard. Technical people in other countries may also have ideas as to the content of the eventual standard. A process of discussion and understanding is needed to arrive at the final standard that represents all of the technical information which is available. Being well prepared on the technical issues is the way to success.

In the event that no international Technical Committee exists, your task may be to create the interest to establish a new Technical Committee. This is done repeatedly as parties find the need for new Technical

Committees. ISO 14000 is the product of one of these new Technical Committees - TC 207 - which was formed specifically to establish environmental management standards.

In order to evaluate ISO 14000, it is necessary to look at the experience with ISO 9000. The concern which has surrounded ISO 9000 is not the fault of the standard, but the parties who excessively exploited the availability of ISO 9000. ISO 9000 actually had its roots in a USA Military Standard which was intended to allow customers and suppliers to better communicate on quality requirements. The British recognized that the concept of quality management was suitable to use as a means to improve the quality of products and the competitiveness of their industry. They developed the British Standards (BS) 5750 standard such that British manufacturers could use it. Then they gained the broader acceptance by bringing it to ISO TC 176 as the basis for the ISO 9000 series of standards.

The USA had an active group of quality professionals involved in the development of ISO 9000. What happened is that once the standards were published, enterprising opportunists warped the benefit of the standard to generate lots of hype about the fact that compliance with the standard was necessary in order to do business. This "doing business" was attached to Europe because at the same time that the standard was being developed, Europe was looking for a way to implement their "New Approach" to product directives. The "New Approach" versus the "Old Approach" was that Europe would rely on private sector standards rather than attempting to write all of the technical specifications in the directive. They had been attempting to write all of the technical specifications in the directives and as a result their progress in finalizing directives was pathetic. In the instance of the noise directive for earthmoving machines, it took 12 years to get the directive in effect.

In addition, the European Union needed to have a means to ensure that after the manufacturer completed a type certification of the product, the continuing production would also comply with the directive. The appearance of ISO 9000 on the scene at the time when they were searching for a solution allowed a lot of opportunists to exploit the fact that ISO 9000 could serve as a means of ensuring that the manufacturer had some capabilities with regard to quality.

Because Europe has always had an excessive penchant for third party approval, rather than the American concept of "innocent until proven guilty" - i.e., "self-certification", the combination of culture and practice gave ISO 9000 certification a kick start. American efforts to slow this process were too late and futile. Further, some enterprising Americans also thought that marketing "one-up-manship" could be accomplished by being the first to attain ISO 9000 certification. Third party registrars played right into this and readily overplayed the concept that third party registration was the only way to be in the future market. Once the avalanche started, it was impossible to contain it as many companies just fell in line rather than having justification for doing the registration. Once a company got sucked in, it had to support the decision to do the certification even if it couldn't see any real advantage. Caterpillar took a very deliberate approach to ISO 9000 and has only certified facilities to ISO 9000 where it was beneficial. We will complete this certification only where it will be beneficial.

Because of the rude awakening that USA industry got with ISO 9000, once ISO 14000 started to generate interest, USA industry vowed to not let another ISO 9000 happen. Thus, the ISO 14000 development process has been well supported by USA industry to effectively participate in the development of standards and to make good technical comments,

ISO 14000 is a management system for industry to use to improve its environmental performance. It simply requires that an organization have an environmental policy, that it evaluate the performance of that policy and continually improve its environmental performance. Every organization can benefit from such a process. Minimizing the negative impact on the environment is a viable goal. But, it has to be considered in relation to all of the other factors which are important as well.

The questionable value lies with the need for a third party to certify that an organization is in compliance with the program which it has put in place. There is nothing wrong with an organization calling in a third party to evaluate the organization's performance. But if bodies that engage in third party certification excessively hype the benefits of third party evaluation and organizations are gullible to such hype, ISO 14000 could go the same route of ISO 9000 - adding cost with little initial value. Hopefully, most organizations have learned from ISO 9000 and will make good decisions regarding the merits of third party certification and will do that where it has merit and not just because they have been hyped by a body.

The USA role in the ISO 14000 standards development is much more aggressive and has brought better and broader talent from industry to the USA TAG. As a result better business input is being brought to the standards development process, such that top management of enterprises will not be surprised when the ISO 14000 standards are completed. In addition, where third party certification will be beneficial, the USA are taking the necessary steps to ensure that the certification, accreditation and recognition programs will have the credibility such that multiple certifications will not be required.

No discussion of international standards can be complete without the evaluation of regional standards organizations. The regional standards organizations in Europe - European Committee for Normalization (CEN), European Committee for Electrotechnical Normalization (CENELEC) and European Telecommunications Standards Institute (ETSI) create some unique complications into the standards arena. The European Union has decided to make use of CEN and CENELEC in a number of industrial sectors. The reason for their use is quite simple because the European Union needs to have consistency in the application of standards across the European Union. ISO standards are voluntary and countries in their national standards bodies can adopt them verbatim or can make some modifications. If the European countries were to make such modifications to ISO standards, there would be unequal application of the standards across Europe.

CEN and CENELEC has provisions in their charter that "no member country may have a standard in conflict with the European Standard". With this provision, the European Union can be assured that the standard they have accepted as being sufficient, will be equally applicable in all of the EU countries. That is also important to American exporters, so that they know that the standards are the same in all of the EU countries.

One of the concerns has been that if the EU countries agree in advance on CEN or CENELEC a standard that they will have enough votes in ISO to have their standard adopted. Certainly on raw votes they will have the advantage. ISO is more than raw voting. ISO must also establish the most technically valid standard. Thus, there is a need for technically valid consensus on the content of a standard and not a mere political vote on the standard.

One of the ways to avoid the situation is to keep the action in ISO. Americans need to be the ones that are initiating new work items and bring the drafts for standards to the ISO process. In many instances Europe is not at the forefront of technology. Thus, the Americans can lead. Where Americans don't have the technology, we have to recognize that others may have the better idea. What we are about is moving the best idea forward and not protecting vested interests in existing standards. If we recognize that objective, we can work together in developing international standards which will serve American industry to the fullest extent.

The USA industry can ensure that it will not be disadvantaged in the ISO standards development process when it aggressively participates in the ISO Technical Committees. Aggressive participation involves bringing together good, sound technical rationale to support its positions and sending qualified people to the meetings. Accepting the task to make the first drafts and to convene as many working groups as is possible are other ways to eliminate any disadvantage for USA industry.

A frequent question which is raised concerns the ability of small and medium size firms to have input into the standards development process. This is where the Trade Associations play a significant role. Most firms find that it is beneficial to participate in their industry Trade Association. The Trade Association provides substantial information on the standards that are being developed in the sector. For example, the Equipment Manufacturers Institute (EMI), which serves the construction and agricultural machinery sectors spends a considerable amount of its resources on providing information on the standards being developed in these sectors. In fact, the construction group are in session today, 4 June, in Chicago and have agenda items to discuss, in detail, the various standards issues that are relevant. Thus, the small and medium size firms have a substantial opportunity to learn of standards developments and present their input to the eventual standard.

Another concern, that is raised with respect to the standards development process, is the cost of preparing standards, convening meetings and distribution of standards. It is necessary that all of those who benefit from the standards contribute to the cost of the process. The sale of standards is the most typical means of funding the process. This ensures that all who purchase and use the standard are contributing to the cost of the process. Unfortunately, this means that the cost of the standards is quite high in relation to the intrinsic value of the standard as judged by the number of sheets of paper or bytes of information communicated. As a result there is some concern about leakage past the sale of standards.

The Society of Automotive Engineers and the American Society of Agricultural Engineers both have cooperative engineering programs where members of the industry assist in the standards development work according to the benefit they derive. The second source of income allows them to offer standards at a lower cost and thus the users of the standards feel that they are receiving better value. This second source of income for the development cost also helps these Professional Societies better plan their cost structures as they are not solely relying on the sale of standards. This avoids problems where the funding of the process is solely through the sale of standards.

I appreciate the opportunity to express my views before this committee. The standards system that exists nationally and internationally has many excellent attributes. Like any thing that we have created,

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it has its shortfalls and opportunities for improvement. The way to improve it is to evaluate the shortfalls and then bring talented people into the process to initiate improvement. In the earthmoving machinery sector we continually look for new areas for standardization and have used new technology to expedite the process of developing standards. USA participants have been aggressive in presenting their information so that we get standards that reflect our views and enable our industry to succeed.

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Mrs. MORELLA. Thank you very much. Mr. Bold?

STATEMENT OF STEVEN BOLD, MANAGER, ENVIRONMENTAL COMPLIANCE GROUP, CONTINENTAL CIRCUITS CORPORATION, PHOENIX, ARIZONA

Mr. BOLD. Good afternoon, Madam Chairman. Thank you for inviting me to testify today regarding the impact of ISO 14000 on small business.

My name is Steve Bold and I manage a very gifted group of people within the Environmental Compliance Group of Continental Circuits, located in a very warm Phoenix, Arizona.

I am testifying today on behalf of the Institute of Interconnecting and Packaging Electronics Circuits or, to make it a lot easier, the IPC.

Continental Circuits is a member and strong supporter of this 2100-member organization.

IPC is the national trade association for the electronic interconnecting industry. IPC membership includes companies that produce printed circuit boards that are referred to in our industry as printed wiring boards, or PWBs, for short.

We prefer PWBs because it tends to raise some eyebrows when you tell people that you manufacture PCBs.

Included as well within our membership are companies that produce electronic assemblies by attaching electronic components, such as computer chips, to bare PWBs.

Although IPC membership includes electronic giants such as Texas Instruments, Intel, and IBM, the vast majority of IPC's more than 2100 members are small enterprises.

Today I will discuss the opportunities and challenges that ISO 14000 certification offers IPC's small-size businesses.

My company, Continental Circuits Corp., is currently implementing an environmental management system that we hope will achieve ISO 14000 certification. My company has chosen to pursue certification for both business and environmental reasons.

We believe that certification will improve our environmental compliance, identify waste elimination and reduction opportunities, reduce potential environmental liabilities, and affirm our corporate environmental ethic resulting in continuous environmental performance over time.

Despite these benefits, our decision to become ISO 14000 certified will be costly. We estimate that our initial investment will be close to \$100,000. We firmly believe, however, that the economic and environmental pay-offs will outweigh these costs.

For the majority of IPC members, the decision to become ISO 14000 certified is difficult because of the cost and resource commitment is so high. Clearly, small firms must perceive tangible benefits from ISO 14000 before they will be willing to pursue certification.

Many IPC companies are establishing environmental management systems that are modelled to a large degree on ISO 14000. However, some members are choosing to forego formal certification, such as third-party certification, for one simple reason—cost. Such firms are committed to improving their environmental performance and are willing to go beyond current regulatory requirements.

However, they are unwilling or unable to pay an outside party to certify that they are complying with ISO 14000.

IPC supports the development of voluntary international environmental management standards, such as ISO 14000, that enable companies to internally assess, monitor, and improve their environmental performance. Such standards operate as a template or guide against which firms can gauge their environmental performance.

The decision to use such standards, however, is a business decision, not a regulatory decision. It should be left to each company to decide whether to adopt ISO 14000.

As a result, IPC opposes efforts by the United States Environmental Protection Agency to make third-party ISO 14000 certification a condition for participation in programs that trade regulatory incentives for improved environmental performance.

Third-party certification is extremely cost and therefore, would likely preclude small businesses from participating in such programs, thus, giving large companies a competitive advantage over small companies and, quite possibly, driving small companies out of business.

Small companies should not be penalized by government simply because they lack the resources to undergo third-party certification.

IPC strongly supports the provision that allows companies to self-certify that their environmental management systems comply with ISO 14000. Self-certification allows small companies to enjoy the benefits of ISO certification at the lowest possible cost.

IPC urges the EPA to allow small companies to self-certify that their environmental management systems comply with ISO 14000 in order to participate in alternative regulatory systems.

However, if third-party certification does become a condition of participation, the government should assist small businesses to achieve such certification through financial and compliance assistance.

It is also the opinion of our larger members that if they utilize third-party certification, the issue of frequency of audits must be addressed. It is unreasonable to require continual annual audits if the company has repeated compliance in consecutive audits.

In summary, we support ISO 14000 as an optional environmental standard if the issues of perceived benefits, cost and third-party certification can be resolved.

Thank you for giving me the opportunity to testify before you today.

[The prepared statement of Mr. Bold follows:]



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Testimony of
Mr. Steven A. Bold
Manager/Environmental Compliance Group
Continental Circuits Corp.
On Behalf of
The Institute for Interconnecting and Packaging
Electronic Circuits (IPC)

The Subcommittee on Technology
Committee on Science
U.S. House of Representatives

Hearing on the Increasing Importance of International
Standards to the Industrial Community
and the Impact of ISO 14000

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Serving the Printed Circuit Board and Electronics Assembly Industries, Their Customers and Suppliers

Good Afternoon, Ms. Chairwoman. Thank you for inviting me to testify today regarding the impact of ISO 14000 on industry and, in particular, on small businesses.

My name is Steve Bold and I manage the Environmental Compliance Group for Continental Circuits Corp., located in Phoenix, Arizona. I am testifying before you today on behalf of the Institute for Interconnecting and Packaging Electronic Circuits (or "IPC"), of which Continental Circuits is a member. I am also the Co-Chair of IPC's Environmental, Health, and Safety Committee's Legislative Subcommittee. I respectfully request that my written statement be submitted for the record.

IPC is the national trade association for the electronic interconnection industry. IPC membership includes companies that produce bare printed circuit boards, commonly referred to as printed wiring boards (or "PWBs"), as well as companies that produce electronic assemblies by attaching electrical components, such as computer chips, to bare PWBs. IPC members also include suppliers to the industry as well as equipment manufacturers that use PWBs in products, such as consumer electronics and sophisticated industrial and military electronic systems. IPC members are located in all 50 states.

Although IPC members include electronic giants, such as Texas Instruments, Intel, and IBM, the vast majority of IPC's more than 2100 members are small enterprises. Ninety percent of IPC's independent board manufacturers have less than \$10 million in sales, eighty percent have less than \$5 million in sales. The typical PWB shop employs fewer than 100 employees and has a profit margin of less than four percent.

Today, I will discuss both the opportunities and challenges that ISO 14000 certification offers IPC's small-sized businesses.

My company, Continental Circuits Corporation, is currently implementing an environmental management system that will achieve ISO 14000 certification. My company has chosen to pursue certification for both business and environmental reasons.

First, we at Continental Circuits believe that ISO 14000 certification will become a recommendation for doing business just as ISO 9000 has become a recommendation from our customers. Second, we believe that certification will improve our environmental compliance, identify waste elimination and reduction opportunities, reduce our potential environmental liabilities, and affirm our corporate

environmental ethic, resulting in continuous environmental performance over time.

Despite these expected benefits, our decision to become ISO 14000 will be costly. We estimate that our initial investment will be close to \$100,000, consisting of approximately \$40,000 in software and \$60,000 in labor. We firmly believe, however, that our economic and environmental payoffs will outweigh these costs.

By IPC standards, Continental Circuits Corp. is considered to be a large company. We employ approximately 1200 employees and have close to \$120 million in annual sales. We are fortunate that we have both the financial and human resources to commit to our ISO 14000 certification process.

For the majority of IPC's members, however, the decision to become ISO 14000 certified is considerably more difficult. The growing pressure to become ISO 14000 certified threatens their bottom line — some feel that it threatens their very existence. For these companies, the costs of certification are large, whereas the benefits appear to be small or nonexistent.

The cost of becoming ISO 14000 certified have been estimated to be between \$30,000 and \$100,000 per facility. Some members have stated that they may have to hire additional employees just to manage the ISO certification process. For small companies, the addition of another layer of environmental controls on top of current regulatory requirements is seen as particularly burdensome. Clearly, small firms must perceive tangible benefits from ISO 14000 before they will become certified.

Proponents claim that ISO 14000 will result in enhanced international trade for certified companies as well as improved global environmental performance; however, for IPC member companies, these benefits are uncertain and risky. Although the majority of IPC member companies trade domestically, some feel that the market pressure to implement ISO 14000 may increase as customers, suppliers of electronic equipment in global markets, require them to be ISO 14000 certified. Once certified, firms may be forced to pass certification costs on to customers, which may result in customers turning elsewhere, possibly overseas, to purchase their electronic interconnections.

In addition, many IPC companies are establishing environmental management systems that are modeled, to a large degree, on ISO 14000. Small members in particular, however, have chosen to forego

formal certification for a simple reason – cost. Such firms are committed to improving their environmental performance and are willing to go beyond current regulatory requirements; however, they are unwilling to pay an outside party to certify that they comply with ISO 14000. Small companies should not be penalized because they do not have the resources to undergo formal certification.

The United States Environmental Protection Agency is currently testing a pilot project in Region 1 that would reduce environmental inspection and oversight for companies that undergo third-party environmental certification. IPC opposes this pilot project because the third-party certification requirement precludes small business participation. Making regulatory incentives contingent upon third-party certification will, in effect, give larger, well-financed companies a competitive advantage over smaller companies and, quite possibly, drive smaller companies out of business.

IPC SUPPORTS THE DEVELOPMENT OF VOLUNTARY
INTERNATIONAL ENVIRONMENTAL MANAGEMENT STANDARDS
THAT ENABLE COMPANIES TO ASSESS THEIR ENVIRONMENTAL
PERFORMANCE

IPC supports the development of **voluntary** international environmental management standards, such as ISO 14000, that enable companies to internally assess, monitor, and improve their environmental performance. The decision to establish an environmental management system, that is based on voluntary international standards, such as ISO 14000, is a business decision. It should be left to each company, based upon its own determination of whether the benefits of such a system outweigh its costs.

For example, many IPC companies are prepared to become ISO 14000 certified if the market demands such certification. These firms acknowledge that, if their customers recommend that they become ISO 14000 certified, it is probably in their best interests to become certified. However, the decision to become certified should be left to the company.

IPC supports the provision in ISO 14000 that would allow companies to self-certify that their environmental management systems comply with ISO 14000. Self-certification allows small companies to enjoy the benefits of ISO 14000 certification at the lowest possible cost.

IPC STRONGLY OPPOSES THIRD-PARTY CERTIFICATION AS A
CONDITION FOR PARTICIPATION IN ALTERNATIVE
ENVIRONMENTAL REGULATORY SYSTEM

IPC strongly opposes EPA regulatory initiatives that would condition regulatory flexibility on third-party ISO 14000 certification. Third-party certification is expensive, unnecessary, and likely to preclude small business involvement. ISO 14000 was developed to be a voluntary standard containing self-certification provisions. Companies that go beyond current regulatory requirements by instituting an environmental management system that is modeled on ISO 14000 should be allowed to self-certify that they comply with ISO 14000. Facilities currently self-certify their compliance with environmental regulations. Participation in a voluntary, alternative regulatory system should not require more stringent rules than compliance with legal requirements.

If third-party certification does become a condition of participation in an alternative regulatory system, the government should assist small businesses achieve such certification. For example, states could direct funds that are freed-up by alternative regulatory systems to finance low-cost third-party certification programs for small businesses.

Thank you for giving me the opportunity to testify before you today. I would be happy to answer any questions you might have.

Mrs. MORELLA. Thank you very much, Mr. Bold, for very succinct testimony.

I want to thank all of you for the excellent testimony you've given and for the voluminous materials that you have supplied to this Subcommittee, which will also go to the Full Committee.

Yes, I've often wondered why they use the term, ISO 9000 and 14000. Where do these figures, these numbers, come from? I guess they're kind of arbitrary. But I didn't know whether there was some particular kind of magic in it.

But I'm kind of interested in following up on the idea of taking from your statement, Mr. Bold, the idea of the cost. For instance, what is the advantage of a company that doesn't do international business to go through the registration process? What is the cost?

I think you said \$30,000 to \$100,000. And the whole concept of small business going through the third-party certification, rather than self-certification.

Should there be an alteration in that? Should self-certification for small businesses be allowed?

I wonder if any of you would like to undertake—maybe all of you would like to make some brief comment about it, particularly if you feel strongly about it.

Then there was a concern about—not the concern—the possibility that—you know, we have these manufacturing extension centers. And there will ultimately, I think by the end of '97, I think there will be about 75 of them.

Is that a possibility, that those manufacturing extension centers could do the third-party certifying?

Did you want to start off, Mr. Cascio?

Mr. CASCIO. There is no prohibition against self-certification. Self-certification is allowed. The standard allows it. The system allows it.

The only question is who is going to believe it?

Mrs. MORELLA. Right.

Mr. CASCIO. That's the only question. So no one is stopping anyone from self-certifying. If you or anybody else believes an organization that they're certifying to their environmental management system—we're talking about environmental protection, environmental management, an area that, over the last 25 years, I think we all have enough experience with how contentious and how little trust there is.

If anyone in this room can tell me that if I self-declared, they will trust me, I will self-declare. If they won't trust me, then it's not worth anything.

Mrs. MORELLA. So you get credibility from the third party.

Mr. CASCIO. Of course.

Mrs. MORELLA. And that could be significant. Not because of you, but because of other experiences or skepticism.

Mr. CASCIO. Right. With respect to cost, the standards are designed to be extremely flexible and can be scaled to the size of the organization.

Now at my previous employer, IBM Corporation, we just certified two organizations in Europe, one in Scotland and one in Germany, and the cost for both organizations was less than \$20,000 for each.

And we're talking about a significant organization with a number of thousands of employees.

So the cost does not have to be high. It can be scaled. And the advantage—you had another question. You had a question about why would a company that does not do international trade, why would they be interested in ISO 14000?

ISO 14000 gives you an approach to environmental protection that relies on environmental management and develops an environmental culture within an organization.

The alternative is to constantly harangue companies to do better environmental protection, which is what we've been doing for 25 years—beating them over the head and telling them that they need to do better environmental protection through enforcement of the laws and so on.

This is an approach that essentially relies on changing behavior. It changes the behavior of employees. It changes their awareness and their commitment to environmental protection.

So I could certainly make the case that ISO 14000 is important in and of itself, regardless of the trade implications.

Mrs. MORELLA. I'm going to ask the rest of you if you would briefly respond to those maybe three questions. And I'm going to let Mr. Ehlers, whom I know has to go to the floor at 3:00, ask the next question.

So perhaps if you have any feeling about it, Dr. Collins—

Dr. COLLINS. Very briefly. I'd like to point out that the U.S. involvement in 14000 was important in getting the notion of self-certification or manufacturer's self-declaration into the way that the certification procedures were written. So you have a choice, in fact.

I also would note that EPA is conducting some pilot programs rather than having decided on its final strategy, and that they are accustomed to doing their own audits.

And so they are beginning to think of new ways of doing things, although I would think EPA would be better able to answer this than me.

And I would say that the manufacturing technology centers that you ask about are certainly beginning to provide information and technical assistance. They wouldn't be doing certification, though, unless there was a radical change.

That's not their mission. Thank you.

Mrs. MORELLA. Mr. Mazza?

Mr. MAZZA. I believe the key point is that there are fundamental environmental benefits for better management systems for the environment.

In any management structure, what you don't measure, you don't improve. So this is a system of measuring performance, of placing management attention on performance.

You don't need third-party certification to do that.

The issue is if external organizations such as a regulator or a customer is going to rely on that, they may request a third-party involvement.

It's really as simple as that.

Mr. THOMAS. There's really nothing of substance I can add to the discussion at this time.

Mrs. MORELLA. We don't usually hear that around here. No one ever admits it.

[Laughter.]

Ms. LING. And I apologize. You won't hear it again.

[Laughter.]

I would just like to add that there is and there must be room for self-certification in the 14000 process.

As far as your question regarding the MEP serving as a potential certifier for 14000, I'm afraid there would be some that would perceive it as placing NIST in a competitive position. There would be other registrars who would be in the field.

Mr. RITTERBUSCH. With regard to the cost, the cost is going to be proportional to the size of the company because of the complexity of the systems that they would have in the environmental area.

So the cost is not something that disadvantages small-or medium-or large-size companies one way or the other.

With regard to the issue of third-party certification, what we need to make sure is that we have true value drivers for third-party certification. And I maintain that was not the case when ISO 9000 started, and that's why we've had all the bad vibes on that.

Now if an insurance company will give you a lower premium if you are third-party certified or certified to 14000, that has real value. If a customer, indeed, will not buy your product unless you are 14000, that is also real value.

But if it's a registrar who is out there trying to make some money from you and is insisting that you be third-party 14000 registered, that's not a viable driver.

And I think that that's what we need to make sure, that American industry understands what are the drivers with real value for third-party certification.

And if there are real drivers out there that have value, then it's a worthwhile thing to do.

Mr. BOLD. While we agree that third-party certification is still an option, we have a great deal of concern in that we are hearing information out of Region 1 that there's a pilot project that is focusing on third-party certification as an issue. It certainly has been discussed at Carole Browner's Common Sense Initiative, Electronics Sector. And we're also hearing feedback that there's dialogue being opened on the Excel projects.

We remain adamant that it has to be an option, just as it's been an option for 9000, in the sense that we, as Continental Circuits Corporation, have allowed companies to either be 9000 certified or establish their own quality management system.

We again feel that ISO 14000 needs to be an option and that companies be allowed to pursue alternative but equal environmental management systems.

Mrs. MORELLA. Thank you all for trying to answer that question. It seems to me that third-party certification could be a very lucrative field to go into, too.

I'm going to defer now to Mr. Ehlers for any questions.

Mr. EHLERS. Thank you, Madam Chair. Just a few questions.

I have to state my concern about the impact on small business. In my district, there are a great many companies that are small business that are suppliers to the automobile industry.

Now they have met ISO 9000 because they wouldn't be in business without it. In other words, the people who buy their parts have required that of them and they seem to be making money doing that.

The question I would have, first of all, and maybe Mr. Bold would be the best to answer this, are there going to be market forces driving the adoption of ISO 14000. And in particular, are these market forces going to be requiring third-party involvement, third-party certification?

And I'll start with you, Mr. Bold, and anybody else who wants to jump in can.

Mr. BOLD. Thank you. We feel that we'll see a similar history as to what we've seen under ISO 9000. While it will not be a requirement of doing business, it will certainly be—and the emphasis on the word preferred—it would be preferred that you be ISO 9000 certified.

We also believe that it will be preferred that you be ISO 14000 certified.

I think the issue of small is relative in that when we talk about small organizations within the PWB industry, we're talking about, I believe, 80 percent of our members being under \$10 million and a significant number of those being under \$5 million.

Certainly, we represent organizations all the way up from, literally, a mom and pop through the Continental Circuits on up to the Intels the IBMs, et cetera.

Mr. EHLERS. Does anyone else have a comment on that, on the economics for small business?

As you said, self-certification is an option. But who's going to believe it? I'm just concerned about how this is going to impact on small businesses.

Will they be able to afford it? And what are the market forces that are going to be driving it?

Yes, Mr. Ritterbusch?

Mr. RITTERBUSCH. I think many of you have heard of QS 9000, which is something that came through the automotive industry. It would not be at all surprising to see something very similar with 14000 in a relationship between a customer and a supplier.

Those of us that have suppliers are very interested in the supplier will have a suitable environmental program, such that they will be in business long-term.

If you develop a supplier, you want that supplier to be around. You don't want that supplier to fail an EPA audit or state audit or something like that.

So I think that could be a driver that will develop as time goes on.

Now on the quality side, all of us have had certified supplier programs where we've worked with them. And many of the small suppliers have said, why don't you guys get together and have one audit, one certification. That's what borne QS 9000.

And I think QS 9000 is an effective and cost-effective way of dealing with the 9000 series of standards.

Now whether or not this will develop to the same magnitude on 14000, we'll have to wait and see. But I could see that there may be a driver there that would have real economic advantage and

therefore, if you're going to have many customers working with one supplier, the third-party certification may be the least expensive way to gain that confidence in the supplier.

Mr. EHLERS. I could postulate one, under Superfund, where a company could incur a significant liability through their suppliers' environmental practices. And I could see where companies might want to require the ISO 14000, just to get away from that liability.

Let me take a different approach and ask the following.

Would it make sense for the Congress to rewrite environmental laws, to the extent of saying that we don't need environmental audits of firms that have been certified to meet ISO 14000? Or that EPA fines and penalties were ameliorated, in the case of firms that have met the 14000 standards.

In other words, the government providing some financial incentive for any size business, but particularly perhaps for smaller ones to go ahead and get certified.

Is that an option? Is that something that we should be pursuing?

Yes, Mr. Cascio?

Mr. CASCIO. I think it's worthy of investigation. The EPA at this point, in my view, does not have the discretion to establish a dual-track system that would take advantage of ISO 14000.

I'm not exactly sure what the legislation would hold, but I think some kind of legislative sanction that would allow the EPA that kind of discretion would be very worthwhile.

Mr. EHLERS. Any other comments on that? Mr. Mazza?

Mr. MAZZA. Thank you, Mr. Ehlers.

I have had discussions with the EPA, also the California EPA. I believe it was the gentleman from Pennsylvania, not just at the federal level, but also the state level. They have the issue of they would like to implement dual-track programs having ISO 14000 as an alternative. And they don't feel that at this time they have all the discretion they need.

They have these pilot programs going on, but if they really want to go ahead and implement them on a broader scale, they're going to need some legislative assistance.

Mr. EHLERS. Any other comments?

Mr. Bold?

Mr. BOLD. We would emphatically support that in that it would be the perceived benefits for the smaller industries. We'd also like to include in that the possibility of if you are ISO 14000 certified, either self-certified or third-party, that it would also provide relief in obtaining permits.

Mr. EHLERS. That might be even more economically advantageous.

Yes?

Mr. RITTERBUSCH. I would concur that the idea you presented here has very much merit and I think it needs to be explored. It's obviously very early in the game of ISO 14000 to draw real specific generalizations on how it's going to work.

But I think as we get some maturity in it, this would be a very favorable idea to develop because what we're trying to do is get the improvement in the environment at the least possible cost in auditing and inspections and things like that.

And the combination of both 14000 and a regulatory program will probably have the best results for U.S. industry.

Mr. EHLERS. Thank you.

Ms. Collins?

Dr. COLLINS. It is possible also that this would be a useful outcome of Public Law 104-113, the National Technology Transfer and Advancement Act, which does ask federal agencies to consider using voluntary standards, where appropriate and where it's useful in fulfilling agency mission.

And this could certainly be a case in point.

Mr. EHLERS. Yes, Ms. Ling.

Ms. LING. I would just like to add that we support that concept as well, and would ask that attention be paid to avoiding the build-up of an unnecessary administrative bureaucracy in 14000, similar to what was created in 9000.

Mr. EHLERS. Yes. Well, thank you very much. I appreciate your comments and I do apologize that I have to go to the floor to defend a bill.

But thank you, Madam Chair. I appreciate the opportunity.

Mrs. MORELLA. Thank you, Mr. Ehlers.

I've always been concerned that we flubbed up on ISO 9000 as a nation, and therefore, I have that continuing concern that we don't do the same kind of thing, even though there are good intentions for ISO 14000.

I wonder, what are we doing, what means do we have for like educating companies that they should be involved?

ANSI probably has a program, and I just wonder if you have any comments. Are we doing enough? Is there more that should be done?

Mr. Mazza?

Mr. MAZZA. We are doing a great deal. More could be done. But let me explain a little bit about what we are doing.

In cooperation with the EPA and the U.S. TAG and ASTM, we have a variety of training programs where we go out and make people more aware of ISO 14000.

We have done this on a regional basis directly through ANSI. I will let Jim speak to ASTM's activity. ANSI has been involved with the Global Environmental Technology Foundation in setting up a WEB site.

And I think I'd rather let Joe speak to that. So I'll leave it at that point.

Mr. THOMAS. There's a significant amount of energy that's being put into making sure that people are aware of and have as much information that they can possibly possess on the issue of 14000 and how it's going to impact the way in which they do business and give them the opportunity to make decisions along the way.

There will be training programs. ASTM, as the administrator of the U.S. TAG, TC 207, have a number of programs scheduled. We're working with the University of Missouri to do a satellite conference that's intended to educate industry, small and large, on the impact of 14000, provide them some basic understanding.

It involves state governments, our Federal Government, and some of the panelists right here at this table.

So there's a lot that's happening.

Can we measure its success? Probably not at this point. And we'll probably only be able to measure its success as there are experiences that are brought forward as far as the benefits derived or the perceived lack of benefits derived.

Mr. CASCIO. As I mentioned before, up until two or three week ago, I was employed by IBM. Now I'm working for the Global Environmental Technology Foundation.

That organization, in partnership with ANSI, is establishing a very comprehensive program of information. And specifically, it's going to be automated information. It's going to be on the WEB, as more and more get their information through the INTERNET.

We are structuring a very comprehensive site on ISO 14000 that will make ISO 14000 information available universally. And I mean universally. Not just in the United States, but internationally as well.

So we are moving in that direction very aggressively.

Dr. COLLINS. From the NIST perspective, we have published a number of publications on ISO 14000, one of which I think came to your committee.

The information on the ISO 14000 is up on the NIST home page with links over to the manufacturing extension partnership.

So we are doing our bit.

And in addition, the Interagency Committee on Standards Policy, which I chaired just this morning, has established a working group on ISO 14000, so that federal agencies are concerned about the issues arising in 14000—not just EPA, but the other agencies as well.

So we're doing our best to make sure that people are at least educated.

Mrs. MORELLA. I would hope that our Trade Representative is doing the same kind of thing, very much involved with enlightening them.

You wanted to add something else, Mr. Mazza?

Mr. MAZZA. I just wanted to point out that the WEB site he was talking about will be available in two weeks' time. The address is a very simple one—it's WWW.ISO14000.ORG.

And you'll be able to see for yourselves the sort of information that's available. And the USCR is involved in the TAG.

Mrs. MORELLA. Good. Good. It was interesting because this Subcommittee had a hearing maybe a couple of weeks ago on, as we move into the new Millennium, which should be like 42 months, we do not have a conversion system for converting to the four-digit field. It's still two-digit.

Nobody seems to even know about it. They all say, hey, this will work its way out. Eight-five percent of our businesses have done nothing about it. Only one agency of Federal Government, the Social Security Administration, is ready to do something or has worked on it.

And as we're going through this, I'm thinking, I'm hoping that this isn't the same kind of reaction that we're getting to ISO 14000, which is why education and the work you're doing, people have got to realize how important it is.

Actually, in the ISO 9000 quality standards, I understand that there was a lot of hype that if a company wasn't registered, that company would not be able to do business in Europe.

I wonder, have European countries required ISO 9000 registration as a condition of exporting goods to their countries?

And then I guess as part of that, too, what percentage of businesses in Europe are ISO 9000-compliant? And then, of course, what percentage in the United States are?

Mr. Cascio, you seem eager.

Mr. CASCIO. As was mentioned by one of the other panelists, it's not so much a requirement. No European government has made a requirement of ISO 14000, or ISO 9000. That would be against the GATT rules, against the WTO rules, and no country has done that.

There was simply a statement from the European Union that they were in favor of ISO 14000.

And it is not certain at this point whether any organization has made a hard requirement of ISO 9000. It's usually worded in terms of preference.

We would prefer that our suppliers be ISO 9000.

Whether anyone would ever be rejected from being a supplier on that basis, I'm not really sure. I don't think there are too many cases like that.

So it's a very soft requirement at the international level. And the same thing is likely to be true with 14000.

Mrs. MORELLA. Ms. Ling?

Ms. LING. ASME's experience has been in the pressure equipment sector. And in there, we have standards dealing with technical requirements and product marks, which ISO 9000 does not cover.

ISO 9000, as you know, is strictly a quality system.

What we found in the pressure equipment sector is that the manufacturers in Europe are still seeking the product mark, whether it be ASME's mark, the German mark, the British mark, or the French mark, and they are not seeking or demanding ISO 9000 third-party registration.

Mrs. MORELLA. Okay. Mr. Ritterbusch?

Mr. RITTERBUSCH. The one area that we've had some experience with respect to 9000 has been like what the British ministry of defense, where they buy products for the British army.

They initially had their own quality certification program that they've had in place. They dropped that and said that ISO 9000 would be the program they would accept in lieu of what they were doing.

And therefore, if we intend to sell product to the UK army, we would have to comply with the ISO 9000 registration.

So that's about the only place that we've seen it where, in that instance, where the ministry of defense decided that they were going to stop doing the work and rely on the third-party certification ISO 9000, rather than send their own inspectors out to do a certification.

Mrs. MORELLA. It's interesting when you consider also it was the United Kingdom, I think, that had by 1994 the greatest number of certification issues. I think it was almost 53, 52 percent, something like that.

All right. Mr. Mazza, and then Dr. Collins.

Mr. MAZZA. Perhaps this little story might shed some light.

At a trade association meeting, the president of a small dyes manufacturer, chemical dyes manufacturer, came to me and said, oh, it's terrible, ISO 9000. I had to spend \$200,000 getting my plant certified.

I said, wow, that is terrible. Why did you do it? He says, well, if I didn't, I wasn't going to be able to sell to my new customers in Europe.

My next question was, well, didn't you have any other alternative? And he said, oh, yes. But it would have meant each of these customers coming to my factories, traipsing through my factories, taking up the time of my people, delaying sales three to six months in each case.

I looked at him and I said, boy, \$200,000 doesn't sound all that expensive any more. And he said, if you look at it that way—

So that's really the issue behind ISO 9000. Is it a requirement? No. But is it an easier way to accomplish your trade objectives? In certain circumstances, yes, it can be.

Mrs. MORELLA. Dr. Collins has decided against it.

Let me ask you a question. Are there ways in which Congress should or could provide guidance to the development of international standards in terms of broadening participation among standards-developing organizations, inducing ISO to move toward consensus procedures oriented on technical acceptability of standards versus political acceptance?

Do you see a role for us to play? Anybody who wants to respond. Okay, Ms. Ling?

Ms. LING. There are many here at the table who might add to the following experience.

This was an experience from the American Petroleum Institute. They had turned over quite a few of the API standards to ISO standards. When they found out that they lost their copyright, that they would have to negotiate an agreement with ANSI, they went to ISO. And ISO literally said to API that if you come to this arena, you have to play by our rules.

I think that trying to get ISO to move away from the one-country/one-vote, and move towards a technical consensus process would be a fundamental change in philosophy and thinking to the ISO organization.

It would be great if they could. I just think it's very doubtful that they can.

Mrs. MORELLA. Mr. Cascio?

Mr. CASCIO. I can speak to my experience with ISO 14000 as the leader of the U.S. delegation.

The ISO process is fantastically democratic. It is consensus. It is participatory.

I have had people with me who have experience with other international bodies like the UN, I will mention them, and the World Trade Organization, and other esteemed organizations, where they say there is no such concept of participation and democracy.

ISO stands out as an organization that is built on consensus and participation of all the countries. And that certainly is my experience with 14000 over the last five years.

Mrs. MORELLA. Dr. Collins?

Dr. COLLINS. Certainly, we find with international standards that in order to influence them, you have to participate.

And I think some of our problems in the United States have been because we ignored them.

We are also finding in our dealings with people from Russia and the new independent states, as well as Central Europe, that they are very interested in ISO because they can meet with the U.S. and other nations as equals there and work to develop standards that are much more open than they feel that they get working perhaps in the European process.

So from that standpoint, working in the ISO framework has been advantageous to people outside of Europe. But, again, you've got to get the participation to the table.

Mr. THOMAS. Madam Chairman, I think there's a number of dimensions to your question, some very easy responses and some that are a little bit more elaborate.

Let me just take some of the easy responses first.

I guess I interpreted your question as to whether Congress should do something. I'm always in favor of Congress not putting its thumb on the scale when it has something to do with a market place determination as to which standard should be used and, in turn, which process should be used to develop that.

I'm not sure if you would find the same kind of experience in all ISO committees, as my friend Joe has described, for the ISO 14000 series because there are different experiences depending on the ISO activity you're involved with, the maturity of the industry that's involved, the degree of prior control and participation that may have existed.

So there's not one story that applies to all.

I'm not even sure whether I'd go as far as to equate ISO to a consensus organization in the truest sense of the word consensus in that when you have national body orientations, one-country/one-vote, I'm not sure if that lends itself to the kind of openness, due process, and consensus procedures that many of us at this table realize and equate to consensus.

The dynamics of the discussion in the ISO 14000 process were exciting. I observed many of them.

I think that it did result in a standard that could be broadly embraced by many countries and by many industries in those various countries.

But I don't believe that we should take that experience and equate it to all of ISO.

Mrs. MORELLA. Ms. Ling?

Ms. LING. I'd like to strongly support the statement that Mr. Thomas has just given.

I think the ISO process was probably a good experience for ISO 9000 and ISO 14000. But in many areas dealing with product, that is not the case.

There was concern expressed earlier today on the small-and medium-business.

The small-and medium-business cannot participate as strongly as global corporations can. Global corporations work well within the ISO process. They have companies, subsidiaries around the world.

They have more than one channel. They have more than just a U.S. membership channel.

But we had a case recently within ASME in flange manufacturers. And I would say that we're talking small-and medium-business. They had a concern with the ISO process because the ISO committee had effectively removed the American product from inclusion in the ISO standard.

ASME, through the support and help of ANSI, was successful in gaining additional votes. But that, too, was ineffective. Essentially, we had to go through the full ISO due-process procedure before the ASME standard, which reflected the U.S. product, was included in the ISO standard.

So, once again, in product-related sectors, the ISO process of one-country/one-vote. There are many other such cases where the bloc of votes represented by the European Union has effectively been to the detriment of small-and medium-manufacturers here in the United States.

Mrs. MORELLA. Mr. Ritterbusch?

Mr. RITTERBUSCH. I think it's very important to keep in mind that as some of the other panelists have indicated, there is not going to be any one solution to this problem because, sector by sector, there are significant differences between how effective ISO has worked.

When you try to harmonize existing standards, it's very difficult to put them together because of the infrastructure that has been built into different regions.

A good example is the frequency of electricity in this country versus Europe. We're off by ten hertz. And there is absolutely no way that we're ever going to get that together. That cannot be harmonized.

Now where we're developing new product and, again, that's where Joe Cascio and ISO 14000, essentially, we're in a new field here. We're writing a new standard.

There are no standards that we're harmonizing. We're writing a new one.

There, the process is working well in terms of consensus. People are coming to the table with the ideas. They're being discussed. They're being evaluated.

The most valid technical decision is being made on those.

But when you have infrastructure, which is either some type of a fitting or some type of a connector or something like that that's used, or even in automobiles where we have certain color lights in Europe and certain color lights in the U.S., it's very, very difficult to break away from that in-place infrastructure and harmonize and accept one or the other.

Now if you go to a third level of some type, maybe you can get people to agree to that. But trying to bring things together where they exist with a very deeply embedded infrastructure is very difficult.

And I guess this is where I'd say that I'm not sure that Congress can attack such a multi-pronged problem with a simple solution.

And therefore, I think we're going to have to let the market place work this one out. Recognizing that it is difficult, some people are

going to have more difficulty than others in trying to gain the most in the trade issue.

Mrs. MORELLA. Final panel comments.

Dr. Collins?

Dr. COLLINS. Although we've talked a lot about ISO and, by inference, IEC, today, there are some other international organizations which dominate in particular sectors. And I would point out that Codex dominates in the food products sector, the World Health Organization in pharmaceuticals, and the UN Economic Commission for Europe, which is broader than that now, for vehicular safety.

The latter organizations, again, are national body, government-to-government organizations. But they are ones which predominate in those particular sectors. Those sectors have just never been active on the voluntary side.

And similarly, we do find wide use of the ASME boiler and pressure code in 54 countries.

So there is no one simple answer. But I think ignoring the process and pretending that ISO or IEC or any of those international organizations will go away if we don't participate is probably what happened to us with 9000.

Mrs. MORELLA. Mr. Mazza?

Mr. MAZZA. Thank you. Your first question, I think you already have weighed in as the Congress. And under your leadership, earlier this year, we finally had President Clinton sign the Technology Transfer and Advancement Act, and your amendment, I think, is congressional weighing in in terms of encouraging the public sector, the regulatory agencies' involvement in the process.

Beyond that, I think just making sure that that happens as a first step would be very beneficial.

On the second question, it really is best left up to each individual sector to make their decision as to whether ISO works for them or not.

For many sectors, it works very well. For some sectors, they simply have no need. They have 100 years of history, for example, ASME, of working outside the ISO system. And the attitude should be, leave well enough alone.

But to try to generalize as to where it works and where it doesn't, ends up giving you just wrong answers.

Mrs. MORELLA. I think Mr. Bold and then Ms. Ling, and then we're going to wind up.

Mr. BOLD. I think, fundamentally, our members don't disagree with the format and scope of ISO 14000. So we would be a little concerned about congressional intervention in the process of developing the regs.

I think, if there is a concern, it would be that Congress makes sure that this not become a barrier for small businesses to alternative regulatory options, under Excel and CSI, both on a state and local level. And also, that it does not become an additional regulatory requirement, that in addition to all the other regs, companies are now required to be ISO 14000 certified.

Mrs. MORELLA. Ms. Ling?

Ms. LING. Yes. I think Congress has a very important role in international standards. And that's as simple as assuring that in

its laws or in the studies or reports of its committee, that it be recognized that ISO is not the only process of achieving international standards. And that ISO is not the only type of international body.

Mrs. MORELLA. I want to thank you also, Dr. Collins, Mr. Mazza, for mentioning the bill that's now law, 104-113, because that was, that part of it was really intended to do what you suggested.

I think you've all been terrific. You've given a very honest, practical and, I think, promising look at ISO 14000.

The record will be open for questions, if we might pose further questions to you. I have others, but I don't want to hold you up.

And so, I will submit them, and other members of the Subcommittee will do the same. I want to thank you again for bringing such expertise, all of you, to the table.

And so, the Subcommittee on Technology is now adjourned.

[Whereupon, at 3:25 p.m., the hearing was adjourned.]

[The following material was received for the record:]



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COMMITTEE CORRESPONDENCE

US TAG TO ISO/TC176 ON
QUALITY MANAGEMENT
AND QUALITY ASSURANCE

ADMINISTRATOR:
ASQC

96 June 4

Statement for the US House of Representatives, Committee on Science, Subcommittee on Technology: Hearing on "The Increasing Importance of International Standards to the US Industrial Community and the Impact of ISO 14000."

My name is Donald W. Marquardt. I am chairman of the US Technical Advisory Group (TAG) to Technical Committee 176 of the International Organization for Standardization (ISO/TC176). TC176 is the international committee that developed the ISO 9000 standards.

The US TAG appreciates the opportunity to speak to the issues identified in the notice of this hearing. The US TAG has about 280 members from a wide range of sectors of the US economy.

The background document for this hearing noted that the ISO 9000 International Standards provide a base point for discussing the role of management system standards. The world marketplace has changed dramatically. International Standards are required to remove non-tariff trade barriers to international trade. The worldwide consensus on the ISO 9000 standards is perhaps the defining symptom of the changed circumstances in the global marketplace that has emerged so rapidly.

The underlying concept of management system standards -- the ISO 9000 standards and the ISO 14000 standards as well -- is that stakeholder assurance regarding product quality, or environmental quality, will best be achieved by simultaneous application of two kinds of standards.

- Product standards, or environmental performance standards, are the first kind. They constitute technical specifications for the desired results.
- Management systems standards are the second kind. The ISO 9000 standards deal with management systems for product quality, while the ISO 14000 standards deal with management systems for environmental purposes. These standards are not prescriptive; they describe *what* management system functions need attention, but do not prescribe *how* to carry out those functions.

"Standardization" encompasses activities in two interrelated areas:

- the conception, planning, production, promotion, and selling of *standards*;
- the conception, planning, establishment, control, promotion, and maintenance of *standards implementation*.

In practice, the standardization problems and opportunities for the ISO 9000 standards and the ISO 14000 standards relate to *implementation* activities at least as much as the *standards* themselves. The issues identified for this hearing illustrate this: it is important to distinguish between the two areas of standardization when dealing with the issues.

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In 1990 ISO/TC176 adopted a strategic approach called "Vision 2000" which has been published by ISO and by various member countries; it continues to guide the work of TC176. A principal theme of the strategic approach is to avoid proliferation of standards. Multiple standards in a single subject are a non-tariff barrier to trade, if only because the standards are *different*. Vision 2000 recognized that the role of the ISO 9000 standards to facilitate international trade could only be maintained if the remarkable, rapid, worldwide success in replacing national standards with harmonized ISO 9000 international standards did not itself lead to new rounds of proliferation. The issue was stated as follows:

"If the ISO 9000 series were to become only the nucleus of a proliferation of localized standards derived from, but varying in content and architecture from, the ISO 9000 series, then there would be little worldwide standardization. The growth of many localized certification schemes would present further complications. Once again, there could be worldwide restraint of trade because of proliferation of [management system] standards and inconsistent requirements."

For product technical specification standards the situation has become more global as well. In many cases international product standards should be developed internationally. In other cases, international adoption of US standard product designs benefits US industry, and US interests are appropriately served by aggressive US involvement in voluntary international standards activities to ensure the advantages of US product designs and standards are fully represented.

Our remaining comments are organized around the five issues that were identified in the hearing notice.

Issue #1 asks: Is the ISO process the most effective means for developing international standards?

In the experience of ISO/TC176 TAG the answer is yes, particularly for the development of management system standards. Management system standards apply to all sectors of the economy, all countries, and all products. For this reason broad international consensus is essential. The ISO rules ("Directives") are satisfactory. The Directives are of manageable size and complexity. They incorporate openness, fairness, consensus. The US TAGs to the various ISO committees know how to work effectively within the ISO system. No system is perfect, and ISO regularly adapts its Directives to meet changing needs. The US has a major influence. The fact that ISO is a private-sector organization is an advantage to US industry. ISO voluntary standards are compatible with the US standards system. Most countries of the world have governmentally-driven standards systems.

Issue #2 asks: How does the US role in ISO 14000 differ from the role the US played in developing ISO 9000?

The ISO/TC176 TAG played a key role in developing the ISO 9000 standards, right from the first meeting of TC176 in 1980. Many US delegates have, and have had, important international leadership roles in TC176 including leadership of strategic planning and of standards writing groups. The TAG took steps to protect US interests and the activity was widely publicized in the US.

In ISO 14000 development the experience from ISO 9000 was incorporated early, by direct contacts between US leaders in the two Technical Advisory Groups. This cooperation

continues. In particular, we are working to ensure compatibility of the two series of standards and compatibility of their implementation worldwide. Another positive development is the collaboration that has been established among several involved US standards development organizations: ANSI, ASTM, and ASQC.

Issue #3 asks: Do ISO standards developing procedures provide adequate protection for US industrial companies?

Yes, adequate protection for US companies, industrial and others, is available. Under any standards development procedure it is important that US interests be recognized early and promoted effectively. The ISO system is suitable, if we do follow through. The ISO system creates documents that are universally accepted. The main concern is the slowness of the process, and ISO is working to accelerate the process.

Issue #4 asks: Are US companies and standards developing organizations being aggressive enough in the development of ISO 14000?

The process has moved rapidly and deliberately with a lot of US involvement all along the way. On this issue the TC207 TAG has primary responsibility. The marketplace will be the ultimate decision maker.

Issue #5 asks: What procedures are being developed to protect royalty income payments to US standards development bodies?

We support the concept that the US standards development system must remain financially viable. We support also the continuation of the US standards system as a private sector activity.

The American Society for Quality Control (ASQC), which is Secretariat for the TC176 TAG and others, operates under the POCOSA copyright agreement between ISO and its member bodies. ASQC supports the POCOSA revision process currently underway.

The economies of many nations have grown substantially since the post-World War II era. The US economy is not as dominant now across the whole spectrum of economic sectors in international trade. The international marketplace opportunity for sale of US national standards in competition with internationally developed standards is reduced in some sectors of the economy. This reality must be faced, but should not be the principal driving force for US policy governing ISO and international standards development. To be successful, future US standards strategies must be appropriate to the global marketplace.

Statement of
 Jean E. Shorett, Ph.D.
 Scientist and Senior Program Manager
 Battelle, Pacific Northwest National Laboratory

"The Increasing Importance of International Standards to the U.S. Industrial
 Community and the Impact of ISO 14000"
 Hearing before the House Science Committee
 Subcommittee on Technology
 June 4, 1996

Madam Chairwoman and Members of the Subcommittee, thank you for the opportunity to present these views.¹ The purpose of this statement is to propose extending discussion of the ISO 14001 Environmental Management Systems (EMS) Standard to applications in the public sector. As expectations for return on public investments become increasingly like those in the private sector, intelligent application of international standards such as ISO 14001 can be an important tool for federal agencies. Potential applications vary widely. They range from framing U.S. policy on regional environmental security concerns or expediting conversion of former Soviet military bases to managing watersheds or federal facilities. Each of these warrants further review but this discussion will focus on the last, using the ISO 14001 Standard in managing federal facilities.

ISO 14001 has been widely described as a basic shift in how we ensure environmental protection. It has also been described as a better way to do business, moving from a reactive stance to a proactive externally-recognizable systems approach. In an era of often turbulent change and constrained resources, this shift will be an important opportunity for federal agencies. Potential applications and impacts are surprisingly diverse. To assist discussion, selected issues have been grouped in three categories: 1) roles for a predictable environmental framework, 2) impacts on performance, and 3) effects on communications with internal and external stakeholders.

Roles for a Predictable Environmental Framework

A key impact of adopting ISO 14001 is the potential for making the environmental infrastructure at federal agencies and facilities more predictable. This is not to suggest that ISO 14001 would produce regimented, one-size-fits-all programs. Quite the contrary. In implementing the Standard's basic elements (i.e., upper management

¹ This statement has benefited substantially from contributions by clients and colleagues, however, sole responsibility for its content must remain with the author. Dr. Shorett has actively assisted federal agencies and facilities in assessing impacts of ISO 14001 on their missions and effectiveness since 1994. She has also co-authored a series of articles on the topic and is a member of the U.S.TAG to ISO/TC-207.

commitment, identification of environmental aspects, setting goals and targets, etc.), sites can develop programs tailored to their needs and conditions -- but reflecting the Standard's common framework.

That common framework may have profound effects. Many federal facilities are both physically and organizationally complex. DOE sites can involve hundreds of square miles and multiple programs. DoD and DOT installations can have numerous tenants and satellite facilities. The Navy, Coast Guard, and Maritime Administration must manage ship-shore interfaces. Land management agencies can have common resources on adjoining jurisdictions. Adding to this complexity are initiatives such as "projectization," privatization, and performance-based contract reform. Each element and initiative may be valuable and well-run, but each may operate in functional isolation. Without an integrating framework, this can result in fragmentation, duplication, and/or avoidable risk -- all of which can be expensive.

In contrast, a Standard-based framework can be recognized by all and allow each program, tenant, project, or contractor to "plug in" to the larger infrastructure. This has the potential to both save money by avoiding redundant capabilities and reduce the likelihood of unplanned releases, accidents, or non-compliance due to gaps in environmental protection. In the same vein, a Standard-based framework can provide a common set of organizational landmarks, language, and strategies for finding needed people and information.

Reducing the cost of deploying new technologies is a second potential impact of adopting a predictable environmental framework. Put simply, a common framework can reduce the need to re-invent wheels each time a new technology is deployed. This may be especially important for agencies whose missions require integrating numerous technical systems or facilities undergoing environmental restoration. Many barriers to introducing new technologies are unrelated to engineering challenges. A predictable environmental framework will not fix all of them but may enable "unplugging" an existing technology and "plugging in" a cheaper, faster, better one. This advantage can be extended to economic development based on new technologies such as industrial parks framed as part of facility conversions.

In addition to lowering transaction costs, tools developed with an understanding of the framework in which they will operate can aim for the predictable needs of that framework. This can be expected to reduce nasty surprises and streamline commercialization efforts. A predictable environmental framework can also help diffuse successful technologies -- across one facility or from one to others. That is, a predictable framework can help ensure that a remedy used effectively on one side of an installation will encounter the same environmental infrastructure on the other side of the same installation.

Like efforts to verify technology performance or establish preferred remedies for standard types of contamination, a predictable environmental framework may lower costs by reducing uncertainty and clarifying needed decisions. Similarly, if a technology has been used at one Standard-based facility, that experience can ease using it at other Standard-based facilities. Starting from scratch or re-inventing the wheel for each new location should not be needed. This may be an important lever in confirming the value of public investment in science and technology. Thus a predictable environmental framework may have both strategic and tactical applications at complex facilities and streamline use of new technologies.

Improvements in Practice

In the on-going discussion on ISO 14001, there has been wide notice of the difference between improvement in an environmental management systems and expectations for improvement in environmental performance. While this may be accurate, there are at least four aspects of adopting ISO 14001 that may positively impact environmental performance and cost. These include: pollution prevention, adopting a proactive stance to environmental requirements, closing gaps, and amplifying other agency initiatives.

Institutionalizing pollution prevention is probably the clearest reason to expect improvement in environmental performance. Regardless of a facility's history or missions, systematically reducing use of hazardous materials can be expected to lower risks of unplanned releases. Intelligently implemented, it can also be expected to result in less hazardous waste for permitted discharge -- not to mention cost savings on treatment and disposal, planning, training, tracking, oversight, documentation, and protective devices. Fewer hazardous materials can also mean lower exposure risks for workers and the public outside facility gates. This may stretch traditional measures of environmental performance but be very important to workers, communities, and resource constrained managers.

The commitment to pollution prevention, coupled with the requirement to assess environmental "aspects" and impacts, may also result in improved water and energy management. Historically, these have often been considered fixed parts of landlord expenses. ISO 14001 provides the integrated framework for reassessing patterns of consumption. This can be expected to result in improved environmental performance and cost savings. It may also allow installations to act as better neighbors in areas where these resources are scarce.

A third way in which ISO 14001 may positively impact environmental performance is its proactive stance in understanding and meeting environmental requirements. At a time when few things hold still, this can be important. Regulations change, funding changes, internal directives change, contracting formats change, missions change -- and what worked one year won't necessarily work the next. This can affect



performance in at least two ways. The first is a facility's ability to identify new requirements, grasp their applicability, and ensure that needed information is passed, training conducted, and operational changes made. Conversely, understanding when requirements are no longer applicable allows pruning them out and refocusing resources on high priority issues. This combination of proactive stance and refocused resources can be expected to improve or more cost-effectively maintain performance.

A Standard-based approach can also reduce the number and severity of gaps in environmental protection. Early benchmarking workshops for federal facilities showed those sites as having a surprising number of the elements needed for ISO 14001. Moreover, complex sites often had several unlinked programs doing each of the ISO 14001 elements. Unfortunately, these same benchmarking efforts also suggested that the parts were not always integrated or rolled out to the right people at the right time. Thus an approach specifically designed to address integration could result in increasingly reliable and cost-effective environmental protection.

Finally, an EMS approach may improve performance by amplifying an agency's other environmental, safety, and health initiatives. In the same way that a Standard-based environmental framework identifies, integrates, and deploys applicable environmental requirements, it can be extended to including voluntary standards. These may reflect agency-wide commitments or industry standards appropriate for site missions. Site managers may also want to adopt an integrated ESH approach, using the EMS framework to deploy health and safety standards. This may require thinking of environmental performance in a broader context, perhaps with a "small e." However, the commitment to pollution prevention, a proactive stance, and systems approach may demonstrate a convergence of improving management systems and environmental performance.

Effects on Communications with Internal and External Stakeholders

An EMS approach was described above as a useful tool for dealing with rapidly changing environmental requirements. It may also play a broader role, providing a corporate environmental framework that people inside and outside an agency can understand and use. Starting with upper management commitment, adopting a Standard-based approach can help internal stakeholders navigate in confusing times and give confidence in making decisions. It also establishes agency and managerial accountability for environmental protection that cannot be legislated. In times of rapid change, that may be quite powerful. Even the best managers can get lost without a framework. ISO 14001 could serve as that guide in making the thousands of daily decisions that converge as agency policy and performance.

ISO 14001 will also be important in communicating with external stakeholders such as regulators, communities, Tribal governments, Congress or the public. This may be useful in several ways. First, adopting an internationally-recognized standard for

environmental management can serve as a down payment on improved credibility. Clearly, this cannot guarantee overnight acceptance. Moreover, different stakeholder groups will have different priorities. However, an EMS approach can help agencies get out of the 'trust us' business. It can also demonstrate due diligence and put federal facilities on the same benchmark as industry.

An improved dialogue with stakeholders may also open doors to flexibility and innovation such as performance-based standards for environmental protection. There has been a good deal of discussion about using ISO 14001 in granting regulatory flexibility. This holds great promise for federal facilities. Few federal environmental statutes were crafted with federal facilities in mind. While perhaps understandable, this can result in situations where fundamental concerns for environmental protection get mixed up with requirements adding little value or designed for the private sector. One major concern in seeking relief from such requirements is that some agencies have track records that do not inspire complete confidence. Others may assume that their missions or image shield them from accountability. Few regulators can be expected to grant flexibility in this type of situation. This can run up costs of compliance without adding value.

A better approach may be to provide regulators and other stakeholders with a means of telling which groups deserve confidence -- with attendant flexibility and cost-savings. ISO 14001 can be such a tool. It can provide an externally-recognizable standard against which facilities can demonstrate their management practices. It can enable regulators to calibrate their confidence to current (vs historic) quality of management at a site. And it may further enable regulators to show their constituencies that environmental protection is indeed being maintained if federal sites are released from onerous but ineffective requirements. This has the potential to free resources for reinvestment in priorities of central concern to both stakeholders and mission programs.

In summary, ISO 14001 may become an important tool for the public sector. However, its value will not be obvious to all. One of the biggest obstacles to using a Standard-based approach is that it can sound like business as usual. Well-intentioned, thoughtful people can see it as one more layer, one more requirement, something separate, one more load to carry. And that leads to confusion. To be fully effective, ISO 14001 must offer a change in how we do business. When that happens, we can look to the benefits of a predictable environmental framework, streamlined insertion of new technologies, increased cost-, mission-, and environmental performance, a corporate environmental vision, and stakeholders and regulators able to tell when confidence and flexibility are warranted. Each of these can be important. Together they lay a foundation for new ways of doing public business.



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